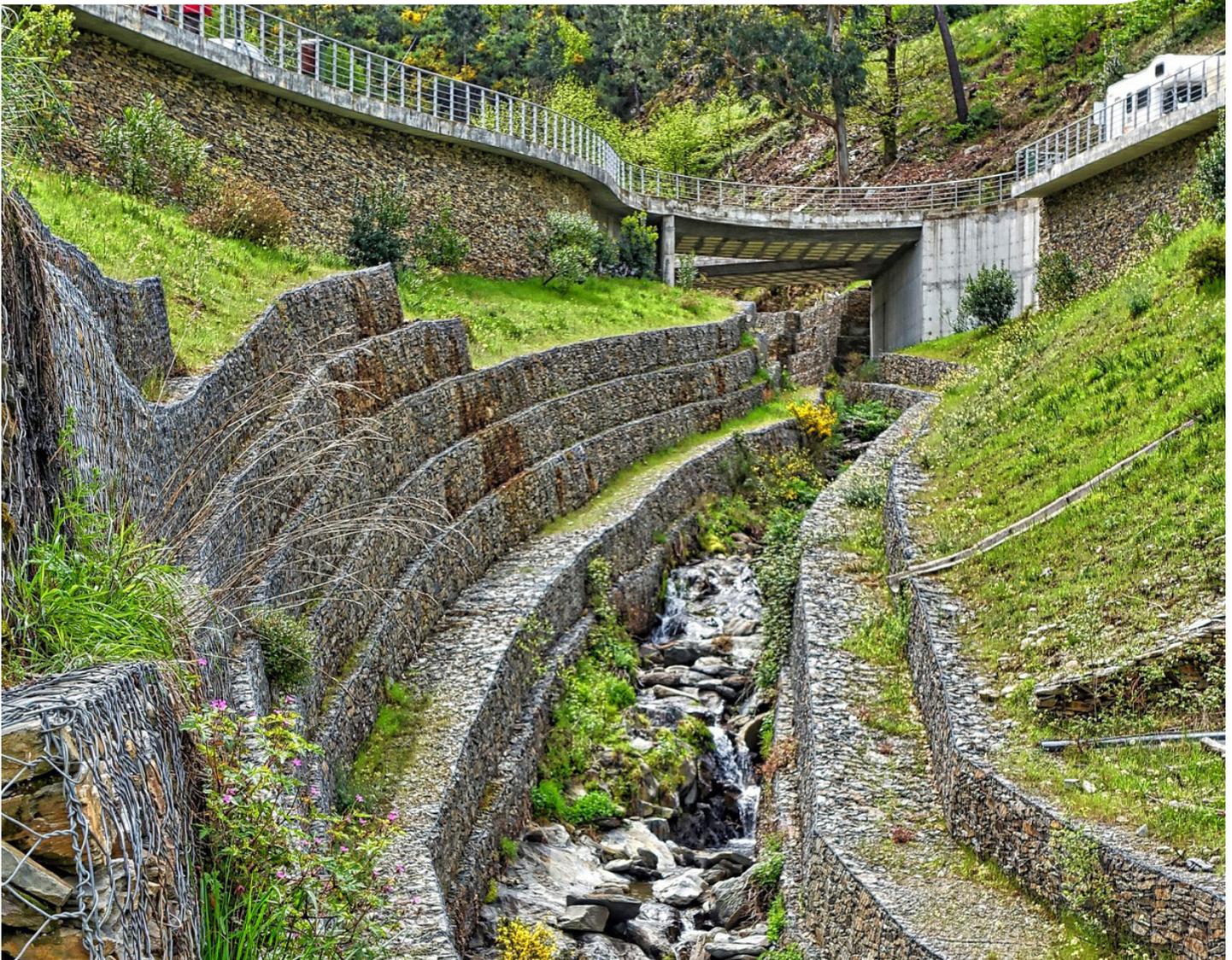




BLACK & VEATCH
MANAGEMENT CONSULTING

2021 Stormwater Utility Survey Report



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Welcome to Our 2021 Stormwater Utility Survey Report

Dear Industry Colleagues,

Stormwater is gaining recognition as an integral component of our natural resource management agenda. This resource needs to be protected and reused to enable economic, environmental and social resilience that helps to improve the quality of life in our communities. The Water Environment Federation's Stormwater Institute* (SWI) has identified the following six key stormwater management objectives:

- Working at the Watershed Scale
- Transforming Stormwater Governance
- Supporting Innovation and Best Practices
- Managing Assets and Resources
- Closing the Funding Gap
- Engaging the Community

While municipalities have a long way to go in achieving these objectives, many continue to strive to enhance stormwater management and develop dedicated funding. Over the past two decades, Black & Veatch Management Consulting, LLC (Black & Veatch) has been a consistent voice in shaping and sharing information on enhanced stormwater management planning, best practices and funding.

This 2021 report is our thirteenth national Stormwater Utility Survey Report. This industry-leading report presents our analysis of information gathered from utility leaders on stormwater management priorities, rate structure, billing, credit program practices and average monthly residential stormwater charges. Some notable findings include the following:

- Funding adequacy and public support continue to reign as the first and second-ranked major utility challenges. Nearly 77% of the survey respondents indicate that funding is not adequate to meet all of their operations and maintenance (O&M) and capital needs.
- Aging stormwater infrastructure is also becoming a critical challenge with 75% of the respondents citing that to be an equally important concern.

Recognizing these continuing trends and emerging challenges, Black & Veatch continues to innovate with comprehensive asset management and service delivery solutions that are integrated with the "concept to launch" stormwater funding framework.

New to this year's report is an industry leadership round table discussion with a panel of three stormwater utility managers. They share their real world perspectives on the benefits of user fee funding, capital program financing, affordability, stakeholder engagement and pandemic response.

We invite you to download the new report for a window into current trends and their implications for your utility. Your questions are always welcome at managementconsulting@bv.com.

Sincerely,



Deepa Poduval | Associate Vice President

*WEF "Rainfall to Results: The Future of Stormwater," 2015



About This Report

About This Report

Company Overview

Black & Veatch Management Consulting, LLC is a wholly-owned subsidiary of Black & Veatch Holding Company and focuses exclusively on the utility sector. We provide a comprehensive suite of integrated strategic and financial, infrastructure modernization and customer technology solutions for water, wastewater, stormwater, power, oil and gas and renewables utility sectors. Our seasoned subject matter specialists and consultants combine in-depth industry expertise, advanced analytics and first-hand practical business experience with extensive technology and engineering capabilities to deliver holistic solutions that work best for utility operations, organization, assets, fiscal resilience and customers.



Survey Design

This Stormwater Utility Survey Report was conducted online within the United States, during August and September 2020. Consistent with our previous surveys, the type of questions we included in the survey reflect the following six topic areas:

SECTION 1 ORGANIZATIONAL INFORMATION

Provides a general profile of the respondents including population, size and characteristics of the service area.

SECTION 2 PLANNING

Provides respondents' perspectives on the most important stormwater management issues and stormwater infrastructure investment drivers. This section also highlights utility governance, the types of permit requirements that utilities comply with and the types of planning utilities engage in to address stormwater management. In this survey, we added a new question to understand the prevalence of public-private partnerships in the provision of stormwater management services.

SECTION 3 FINANCING AND ACCOUNTING

Includes information that respondents shared on stormwater utility revenues, expenditures, sources of funding and the adequacy of stormwater funding to meet utility obligations.

SECTION 4 STORMWATER RATE STRUCTURE AND BILLING

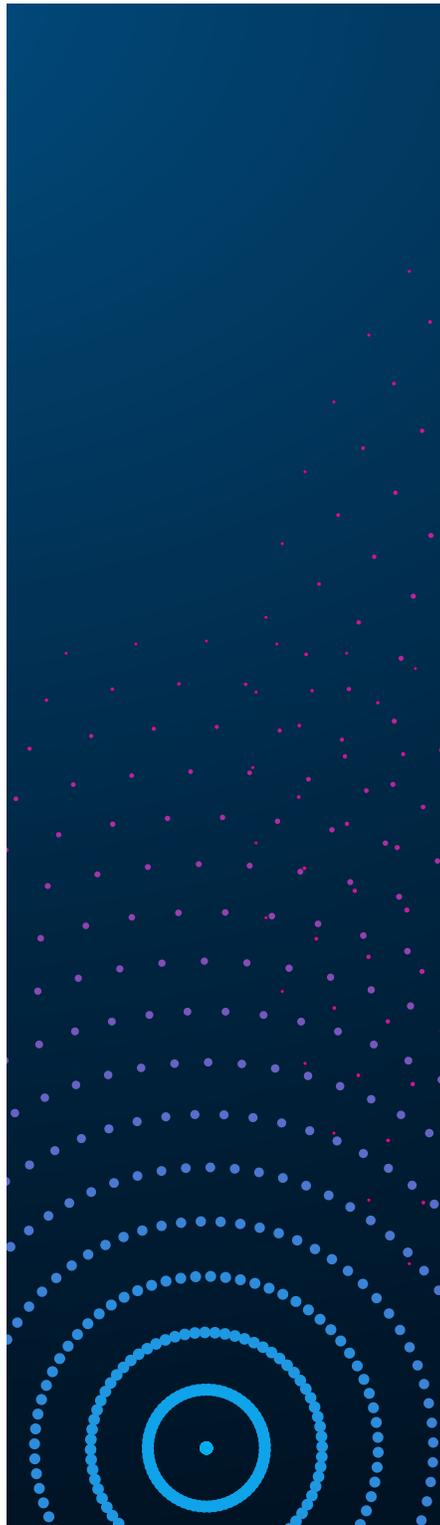
Presents the types of costs recovered through user fees, the fee methodology used in setting rates, the rate structures and the average monthly residential charge of each utility that participated in the survey. Information on the types of exemptions and discounts that utilities offer and insights on legal challenges are also provided. Calculated bills reflect rates in effect as of July 1, 2020. This year, we expanded the questions on rate structure to include non-residential rate structures.

SECTION 5 STORMWATER CREDITS AND INCENTIVES

Offers insights into the types of credits, criteria used in offering credits and any innovative credit programs.

SECTION 6 PUBLIC INFORMATION AND EDUCATION

Assesses the methods of education and multi-media sources used in educating and disseminating information.



Stormwater Roundtable

As part of this Stormwater Utility Survey initiative, the Black & Veatch survey team hosted a roundtable discussion with a panel of three utilities that participated in the survey. We gratefully acknowledge the participation of the City of Bremerton, Washington; City of Fort Collins, Colorado; and City of Raleigh, North Carolina.



The objective of the roundtable session was to have an in-depth discussion specifically on the funding and stakeholder support challenges that utilities have to plan for and manage. The panelists engaged in a robust discussion and shared their real-world perspectives on the following five topics:



Benefits of User Fee Funding



Capital Program Financing



Stakeholder Engagement



Customer Affordability



Covid-19 Pandemic Response

The round table discussion is presented as a feature article in this survey report in the section titled, "The Roundtable: The Practitioners' Perspectives on Stormwater Utility Management."



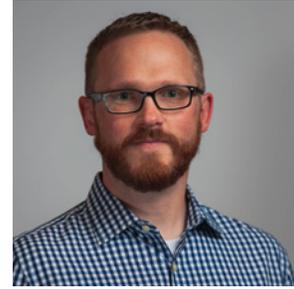
Prabha Kumar

Ms. Kumar is a Managing Director with Black & Veatch and is a national practice lead for stormwater utility consulting services. With over 21 years of experience, she specializes in providing the “concept to launch” suite of stormwater utility development and implementation services. Ms. Kumar’s comprehensive utility consulting expertise includes strategic advisory services, financial planning, cost of service and rate design studies, wholesale pricing studies and expert witness services in utility rate cases and litigation matters. Ms. Kumar served in the Environment Finance Advisory Board’s Stormwater Financing Task Force and is a member of NACWA’s Stormwater Management Committee.



Anna White

Ms. White is a Principal Consultant in Black & Veatch and has served as a Project Manager on projects involving the cost of service and rate determination, revenue bond determination and financial reviews of operations for water, wastewater and stormwater utilities in the public sector. Her economics background and experience with computer modeling and software applications have been utilized in developing financial analyses of municipal water and wastewater utilities.



Brian Merritt

Mr. Merritt, a Manager with Black & Veatch has over 18 years of experience in the engineering and consulting industry. With a background in civil engineering and extensive stormwater management expertise, Mr. Merritt understands the balance needed in communicating technical engineering topics and financial needs to the general public and building broader support for program change. Mr. Merritt has aided communities ranging in population size from 10,000 to 1.56 million in addressing their stormwater management and funding needs.

The background of the page is a dark, semi-transparent overlay of a report document. The report contains various data visualizations, including a bar chart at the top left, a line graph in the center, and a pie chart at the bottom right. The text 'Report Highlights' is overlaid in white on the left side of the report. A thin orange horizontal line is positioned below the text.

Report Highlights

Profile Of Respondents

A total of 73 participants from 20 states completed the online survey.

- Seventy-two participants fund stormwater management in whole or in part through stormwater user fees and one participant funds its stormwater program through a stormwater millage fee.
- This year's participants include 23 first time participants and 50 repeat participants.
- Ninety-seven percent (97%) of the respondents serve a city, rather than a county or a region.

In this survey, we had higher participation from smaller utilities (utilities with fewer than 25,000 customer accounts).

Figure 1 presents the distribution of the participants based on the number of accounts the utilities reported.

Figure 2 presents the general profile of the survey participants.

Figure 3 presents the number of participants by state.

Figure 4 presents the number of participants by Environmental Protection Agency (EPA) region.

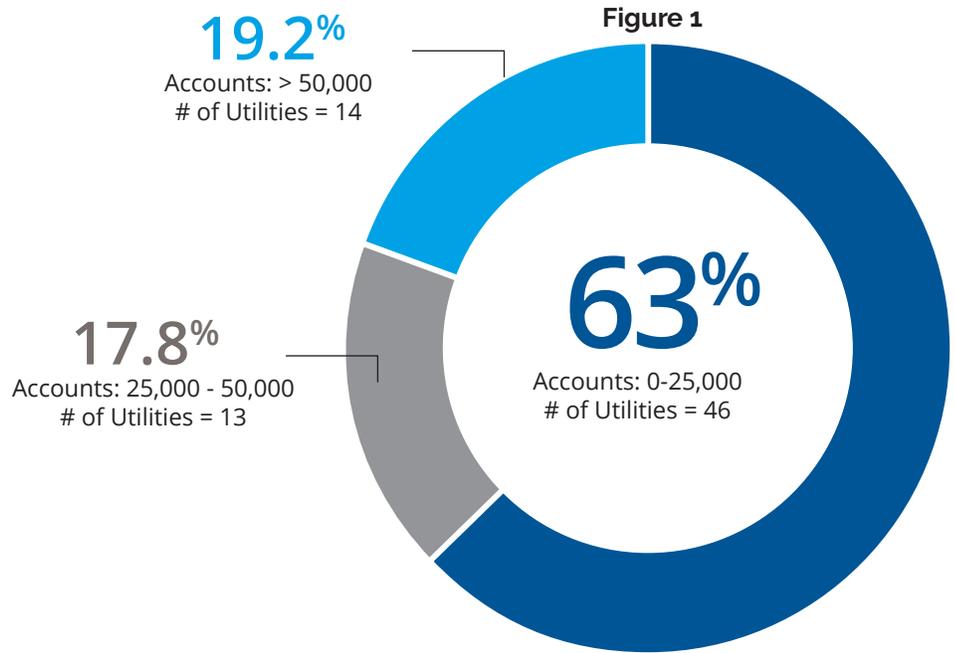
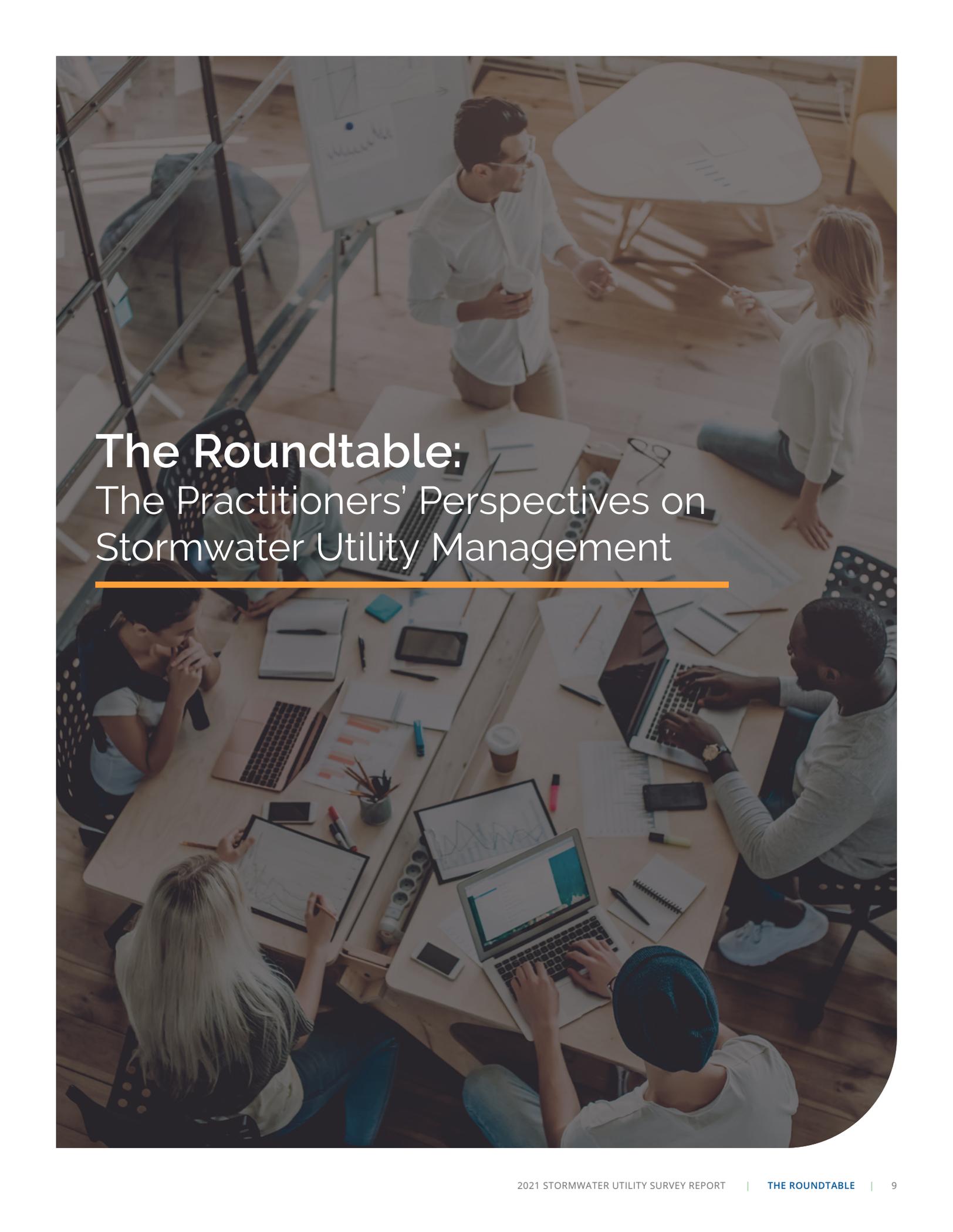


Figure 2

Characteristics	Median	Range
Population Served	46,000 people	86 – 1,584,000 people
Number of Accounts	14,000 accounts	41 – 552,400 accounts
Single Family Residential Gross Area (Lot Size)	8,599 sq ft of the total parcel area	2,074 – 22,000 sq ft of the total parcel area
Single Family Residential Impervious Area	2,629 sq ft of impervious area	910 – 13,000 sq ft of impervious area



The Roundtable: The Practitioners' Perspectives on Stormwater Utility Management

The Roundtable: The Practitioners' Perspectives on Stormwater Utility Management

Overview

Stormwater funding continues to pose a persistent challenge to communities of all sizes in the United States and it directly impacts program operations, regulatory compliance, infrastructure management, flooding resilience and overall quality of life and safety of communities. Even with funding needs increasing, many municipalities still find it hard to garner support for establishing a stormwater user fee funding program. Further, the advent of the COVID-19 pandemic in 2020 has added a stress test on most utilities in the nation. We also continue to find in our biennial surveys of municipalities, with a dedicated user fee funding mechanism, that there are differences in how those utilities plan for and manage aspects such as capital program financing, affordability concerns and stakeholder engagement.



To gain firsthand insights on these specific aspects by giving direct voice to stormwater utility practitioners, this year, the Black & Veatch Stormwater Survey Team hosted a roundtable with three Stormwater Utility Program Managers. This section presents a summary of the perspectives our panelists shared.

We express our deep appreciation to the three panelists for their interest in participating in the round table and sharing their perspectives on their stormwater utilities.



Scott Bryant, PE
**Stormwater Administrator/
Planning and Business Operations**

Engineering Services Department
City of Raleigh, North Carolina



Chance Berthiaume, CPMSM
Stormwater Permit Coordinator

Public Works and Utilities
City of Bremerton, Washington



Kenneth C. Sampley, PE
**Director, Stormwater Water
Wastewater Engineering**

Utilities
City of Fort Collins, Colorado

Editor's Note: We have edited the roundtable discussion for both length and clarity.

Panel Discussion



You all have a stormwater user fee program that has been in place for well over five years. Can each of you share some specific benefits this user fee funding mechanism has provided, to your community's stormwater management?

All three panelists confirmed that user fee funding has provided their utilities the following key benefits – (i) a dedicated and equitable source of revenues for stormwater management; (ii) their stormwater utility does not have to compete with the General Fund for funding; (iii) user fee funding has enabled them to grow their stormwater management program, with enhanced resources and implement a wide array of programs including stream rehabilitation, storm sewer maintenance, total maximum daily load (TMDL) permit requirements and state nutrient program requirements.

With respect to capital program funding, since the inception of the user fee, the utilities have been able to accomplish major capital improvements. Mr. Bryant indicated that Raleigh, North Carolina has spent over \$100 million specifically in pay-as-you-go funding for capital improvements, which was not available to them prior to establishing the user fee program. Mr. Sampley, Fort Collins, Colorado has been able to invest approximately \$120 million in the design and construction of stormwater infrastructure in the last 20 years. In Bremerton, Washington where many of the pipes are over 100 years old, Mr. Berthiaume indicated that they have been able to replace substandard mains, fund environmental restoration projects and fund a portion of the \$55 million investments in sewer separation in their combined sewer system.

Each of these three featured municipalities have user fees established.



Fort Collins, Colorado: 1980



Raleigh, North Carolina: 2004



Bremerton, Washington: 1994



On this key topic of the benefits of user fee funding, the panelists also shared some notable insights.



Mr. Bryant: “We in Raleigh have been able to focus on stormwater asset management

and are taking it to the next level in terms of managing assets and stormwater. We have also been able to develop focused programs for prioritized drainage assistance in neighborhoods where people live, work and play. One keynote, by having that utility funding, we’ve also been able to pursue external grants and other sources of outside funding with matching funds coming from the local stormwater utility.”



Mr. Berthiaume: “In our utility, I’m able to direct funding into not only the operation

and maintenance, but also environmental restoration. We are upsizing our stormwater system to meet our new design criteria, examining climate change, and transitioning to a 100-year storm event capacity for sizing our new pipes.”



Mr. Sampley: “What’s nice about our predictable user fee funding revenue source

is that we have less volatility and are more adaptable to changing work conditions. In addition to major CIP investments, we are able to spend approximately \$1.3 million on annual minor system (small) stormwater maintenance, and invest in the upgrades, maintenance and monitoring of our flood warning system.”



Black & Veatch: We have consistently found that stormwater utilities lean more heavily on cash financing of a capital program than debt financing. What practices and/or policies is your utility using with respect to capital program financing?

All three panelists indicated that their utilities do not have any specific written and approved policies on stormwater capital program financing. The utilities use different approaches and practices to effectively fund their respective capital programs.

Fort Collins, Colorado has historically used a combination of cash and debt financing for stormwater infrastructure. Typically, the utility has issued revenue bonds in a manner that supports and maintains the credit rating of the stormwater utility at AA+ rating. The debt service is part of the utility's \$18 million annual funding. In addition, the utility leverages pre-disaster mitigation Federal Emergency Management Agency grants and has received public assistance grants to respond to flooding emergencies, such as the 2013 flood. Generally, two-thirds of the capital improvement program (CIP) expenditures are on flood control and the remaining one-third is spent on inadequate public stormwater infrastructure in communities and on stream rehabilitation.

Bremerton, Washington relies primarily on cash financing for its capital investments. However, it classifies its CIP into three categories, namely, priority substandard pipe replacements that pose a risk of imminent failure, water quality retrofits to meet TMDL and permit compliance requirements and stream restoration related to fish habitat. By doing so, the utility can effectively leverage grant funding, when feasible, from the State Department of Ecology for water quality-oriented stormwater treatment/retrofit projects and Salmon Recovery Grant Funding for fish habitat restoration projects. Though it doesn't have a written financial policy, the utility strives to maintain 15% to 20% of its annual CIP budget in its capital reserve. As part of its 20-year capital program planning, the utility is looking to define some capital program financing policies.



Raleigh, North Carolina has leaned heavily on pay-as-you-go financing for its capital program, since the inception of the user fee in 2004. However, as part of its 10-year long-term capital financing program, the utility is likely to include a mix of pay-as-you-go and debt financing. Overall, the utility strives to maintain 25% of its annual stormwater budget as its fund balance. Approximately two-thirds of the capital investments go toward conveyance and related system improvements to reduce flooding hazards and the remaining one-third of the spending goes to water quality-related, stream stabilization/restoration and green infrastructure projects.



On this issue of capital program financing, the panelists also shared some additional insights.



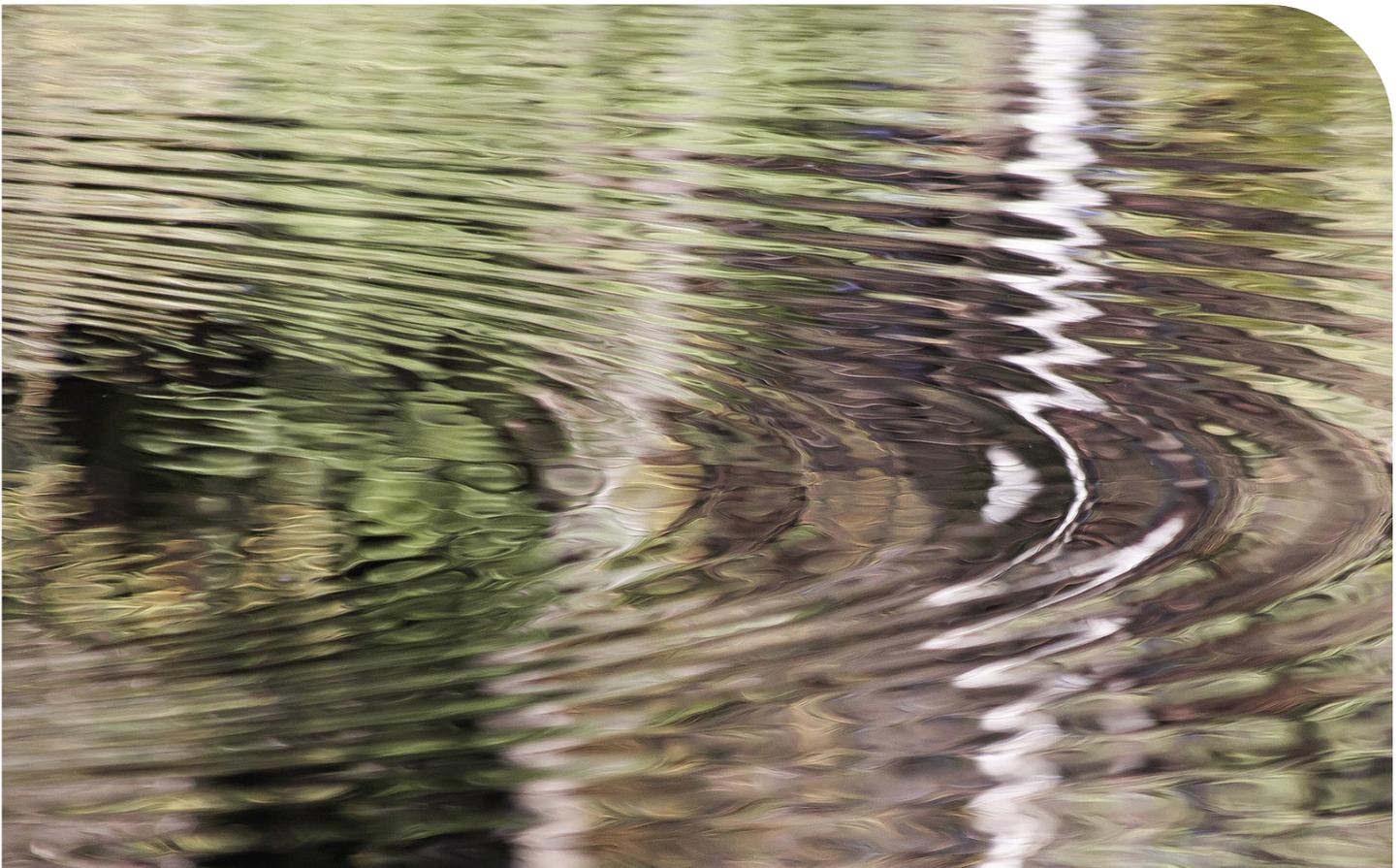
Mr. Bryant: “With respect to capital financing, spreading some of the capital improvements costs over time in the form of debt financing would be beneficial, as the community would realize the benefits from those capital improvements over time. So, we do anticipate having some debt financing as appropriate in the future as part of our balanced CIP funding strategy.”



Mr. Berthiaume: “For a cost-effective capital program, we coordinate our water, sewer and stormwater utility upgrades with a lot of street redevelopment projects, so that everything is addressed at the same time. It complicates project execution, but we set aside a budget in our stormwater utility to support these types of capital needs whenever these projects happen in certain parts of the town.”



Mr. Sampley: “We have a 25-year CIP based on identified capital project needs and we strive to balance debt financing with cash financing to maintain modest annual rate adjustments with a realistic construction schedule. Just like water utilities do, it is important to have a debt financing component as part of the CIP funding mix. However, you have to also have enough flexibility to address emergencies and capital needs that arise and so it is important to have a percentage of your capital funding that is cash financed.”





What specific strategies have you found to be particularly effective in engaging with your citizens and decision makers?

The key takeaway from the panelists on the issue of effective engagement with rate payers and decision makers was that public and customer outreach is not an “afterthought” but an integral part of their Stormwater Management Program. The panelists indicated that direct work sessions with their respective city council leadership have helped them garner strong leadership support. Proactive, multi-channel communication through consistent and updated information channels like websites and social media are important. Direct customer communications through bill inserts and emails can also help create an effective, consistent and timely method to deliver information to seek community feedback.



The participants also shared about some of their engagement in unique outreach efforts.



Mr. Bryant: “We are very thankful for our dedicated and very engaged Stormwater

Management Advisory Committee, which was appointed by the City Council. They provide tremendous feedback to us at the staff level and also serve as a liaison for the City Council and the community. We also engage in floodplain outreach partnering and other programs. For example, we use utility bill inserts to advertise our “Raleigh Rainwater Rewards Program,” which has been extremely successful. Another way we interact with our customers is by seeking their feedback on our water quality protection programs. We also focus on addressing promptly customer “drainage requests” on water quantity and quality concerns and consider those issues in our capital project prioritization. All these efforts help lead to fostering community support for our program.”



Mr. Barthiaume: “We provide summary project reports to City Council, which they

then use to communicate with their district constituents and this serves as a wonderful way to get information out on our stormwater efforts. We also coordinate with the Stormwater Outreach Group in the Kitsap Peninsula and this way we share resources with other communities such as Seattle, Bellevue and Kirkland and send out common messages to the public on stormwater issues in Puget Sound. The online customer survey tool also enables us to interface effectively with our customers to obtain their input on issues and respond to their inquiries.”



Mr. Sampley: “We use messages with fewer words and engaging images in our outreach

through the “Bus Benches Program.” These are strategically located across the City in locations where potential flooding may occur. We find these are a key educational component for our program. The utility garnered the support of commercial customers through the Utilities’ One Planet Program where the program provides hands-on tours of facilities to foster an understanding of the City’s sustainability aspects and stormwater mitigation planning. Further, the utility also leverages schools to disseminate information to students who then raise awareness with parents. The key to fostering project support among decision makers is for them to understand what engagement initiatives have been used with their constituents.”



Affordability is often a major concern not only for residential properties but also for non-residential properties, especially in the case of impervious area-based stormwater user fees. How is your utility planning for and/or actively addressing that issue?

The panelists opined that affordability will continue to be an issue as the program needs increase. However, to balance funding needs and affordability, their utilities strive for modest gradual annual increases rather than large increases and regularly benchmark their rates with that of their neighbors. All three panelists also indicated balancing their capital program and other funding needs to keep their stormwater rates at reasonable levels.

The panelists also indicated using various approaches to address affordability:



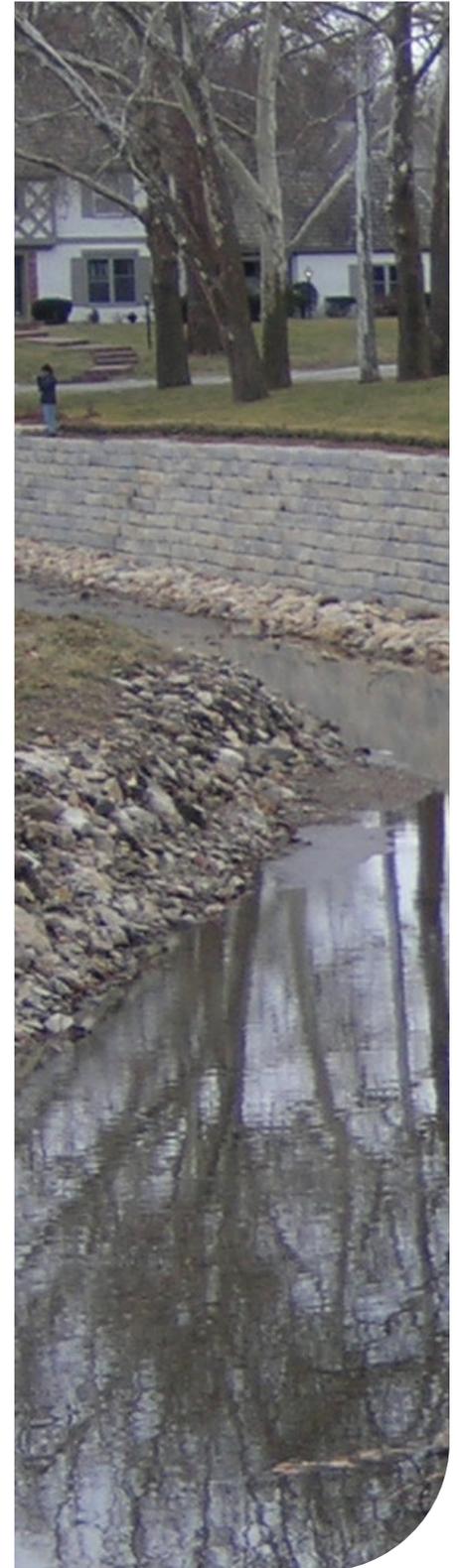
Mr. Bryant: "Raleigh stormwater has a Drainage Assistance Program, which is 100% city-funded and it supports customers' stormwater improvement needs based on priorities. The Raleigh Rainwater Rewards Program and the stormwater fee credits program provide some additional mechanisms for offering assistance for improvements or providing fee reduction. The City also offers a utility payment assistance program."



Mr. Berthiaume: "Bremerton also has a Rain Garden Program that offers up to \$3,000 assistance per residential property for onsite stormwater management. In addition to balancing CIP, leveraging grant funding whenever feasible helps with affordability and helps take the edge off on non-residential customer impact."



Mr. Sampley: "Allowing financial metrics to drive rates helps provide predictability and understanding. Planning a balanced 25-year CIP schedule and following it along with debt financing, enables the utility to mitigate large rate increases. Other key mechanisms such as discounts for residential properties with large lot sizes and having a policy where all properties are charged for stormwater without exemptions promotes equity."





The COVID-19 pandemic continues to test the resiliency of utilities. Can you share insights on what worked well for pandemic response and what areas you feel you'd need to address to enhance pandemic response?

The participants acknowledged that they had to develop adaptive approaches in terms of policies and practices to manage the new normal of continuing service delivery during the pandemic. Another common perspective they expressed was that while the initial transition was a little difficult, once protocols and policies were defined, their utilities transitioned well to continue their operations. All three utilities experienced an increase in overall workforce productivity because of a combination of these factors:

- Effective adherence to safety protocols,
- Minimization of travel time,
- Enhanced use of technology in their day-to-day operations; and
- Virtual meetings and collaboration.





The panelists also shared about their engagement in specific actions.



Mr. Bryant: “The need to function virtually helped the team be more “intentional in communication” and learn technologies they had not used before. For instance, software tools were put to effective use in electronic contracting, project management and in gathering public input through online surveys. The City was able to garner a larger attendance online for Stormwater Management Advisory Commission meetings and was able to conduct a virtual town style meeting for floodplain management.”



Mr. Berthiaume: “Public works developed a pandemic response plan based on the City Mayor’s guidelines. With a single point of accountability in executing the plan and through effective monitoring of the plan and management of supplies, the City experienced just one incident of COVID-19. The City’s focus was on training the workforce in adapting to the pandemic plan. Virtual meetings provided the flexibility to attend regional meetings more efficiently.”



Mr. Sampley: “The City invoked an incident command structure (ICS) that is typically used for emergency response. However, the protocols defined in the ICS did not work that well in the context of the pandemic and were revised. Having a web-based work order management system with applications on tablets helped crews continue field operations. The development review team was able to continue their tasks effectively virtually. A key lesson from the pandemic is the need to reconfigure the work environment to increase efficiency and time management. Future issues and challenges include evolving work environments with a mix of office and home staffing a “blurring” of work-life balance, use of computers, communications and supplies.”

Summary

As the discussion highlights, there are differences among the three utilities concerning the capital program planning process, debt versus cash financing and the types of customer incentives and assistance the utilities provide. However, a key perspective that all three panelists shared is that garnering stakeholder support for sustaining user fee funding requires a continuously evolving proactive effort. Best practices help include prudent long-term capital program planning, proactive collaboration with and the education of decision makers and balancing of planned and modest rate increases while implementing quality stormwater services and improvements for their communities.



Section 1

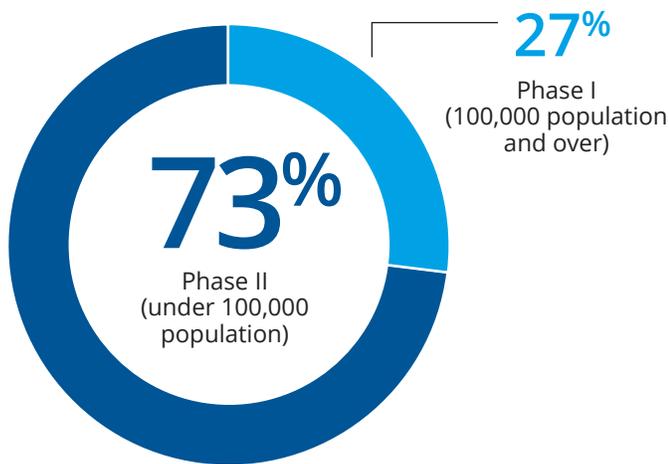
Organizational Information

Organizational Information

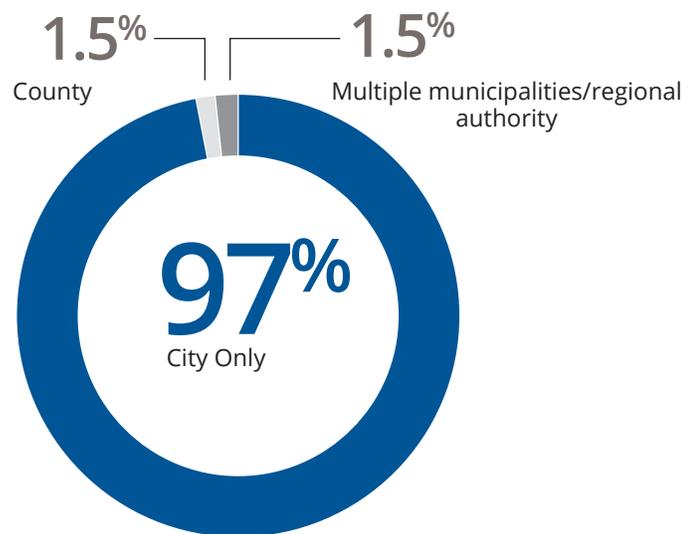
In the United States, according to the EPA, there are 855 Phase I MS4s and 6,695 Phase II MS4s that include numerous cities and counties subject to MS4* discharge regulations.¹

However, as validated again in this year's survey, user fee funded utilities continue to be prevalent in municipalities served by cities as opposed to counties or multi-jurisdictional authorities. Out of a total of 73 respondents, 71 had stormwater responsibilities within city jurisdiction. When compared with our previous surveys, this year a significant number of respondents (73%) were from smaller Phase II MS4 communities. Out of the 13 respondents that have a service area that included both a combined sewer system (CSS) and an MS4, nine indicated they are under a consent order for combined sewer overflows (CSOs) and four also had a consent order for MS4 requirements.

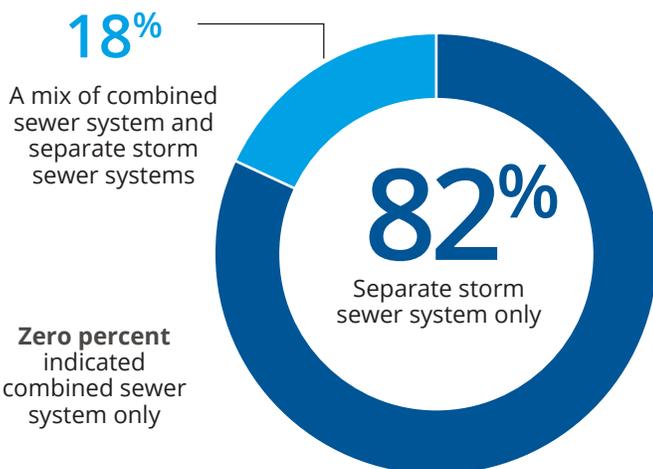
1. From an MS4 permitting perspective, are you classified as: (Select one)



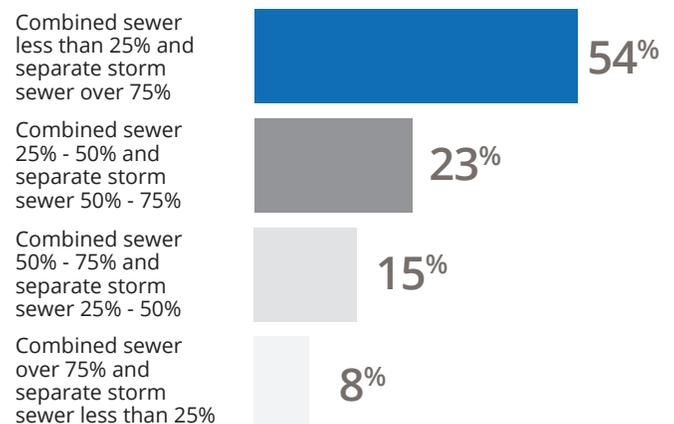
2. What jurisdictional area is your stormwater utility responsible for? (Select one)



3. What type of system is your utility served by? (Select one)



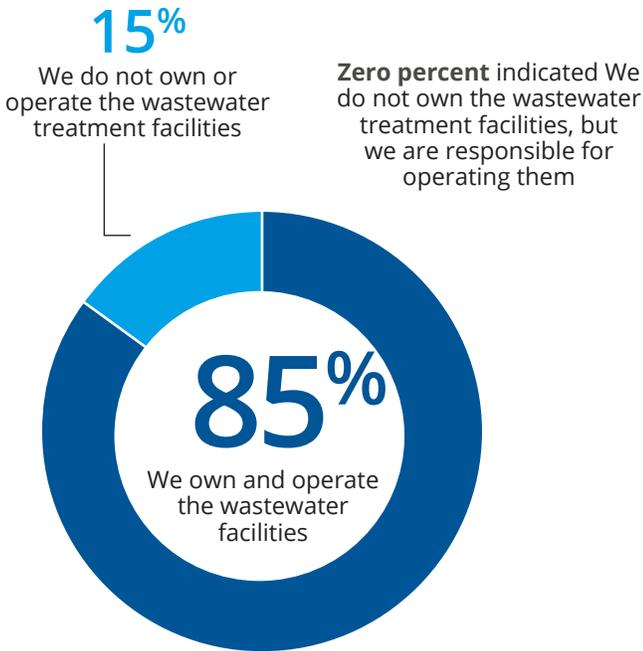
4. If you selected "Mix of combined sewer system and separate storm sewer systems" in Question 3, please indicate the percentage of combined sewer versus separate storm sewer system that exists within your jurisdiction.



* Municipal Separate Storm Sewer System
¹<https://www.epa.gov/npdes/stormwater-discharges-municipal-sources>

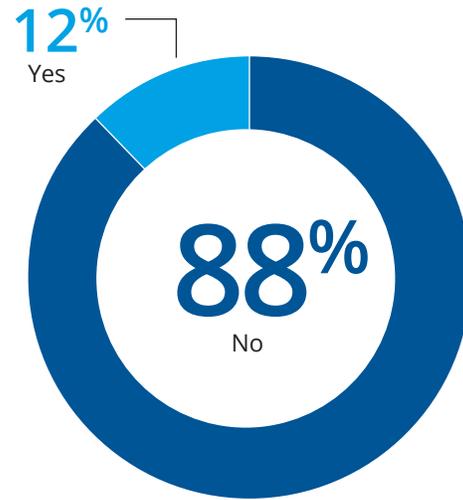
Percentage based on the number of utilities that selected "Mix of Combined Sewer System and Separate Storm Sewer Systems" in the previous question.

5. If you selected “Mix of combined sewer system and separate storm sewer systems” or “Combined sewer system” in question 3, which of the following best describes the wastewater treatment services within your jurisdiction?



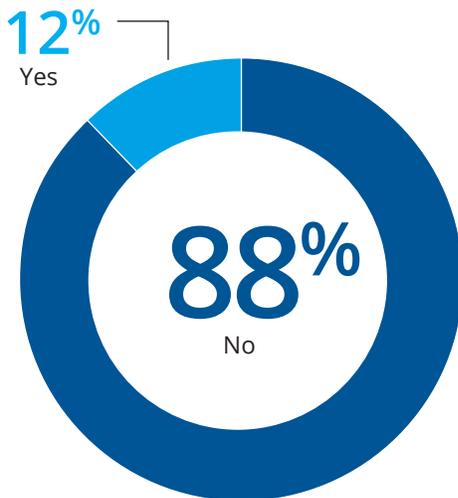
Percentage based on the number of utilities that selected “Mix of combined sewer system and separate storm sewer systems” or “Combined sewer system” in Q3.

6. Is your utility under any type of consent order decree or agreement for combined sewer overflow (CSO) issues?



Percentage based on the number of utilities that selected “Mix of combined sewer system and separate storm sewer systems” or “Combined sewer system” in Q3.

7. Is your utility under any type of consent order decree or agreement for MS4 compliance issues?



Percentage based on the number of utilities that selected “Mix of combined sewer system and separate storm sewer systems” or “Combined sewer system” in Q3.



Section 2
Planning

Planning

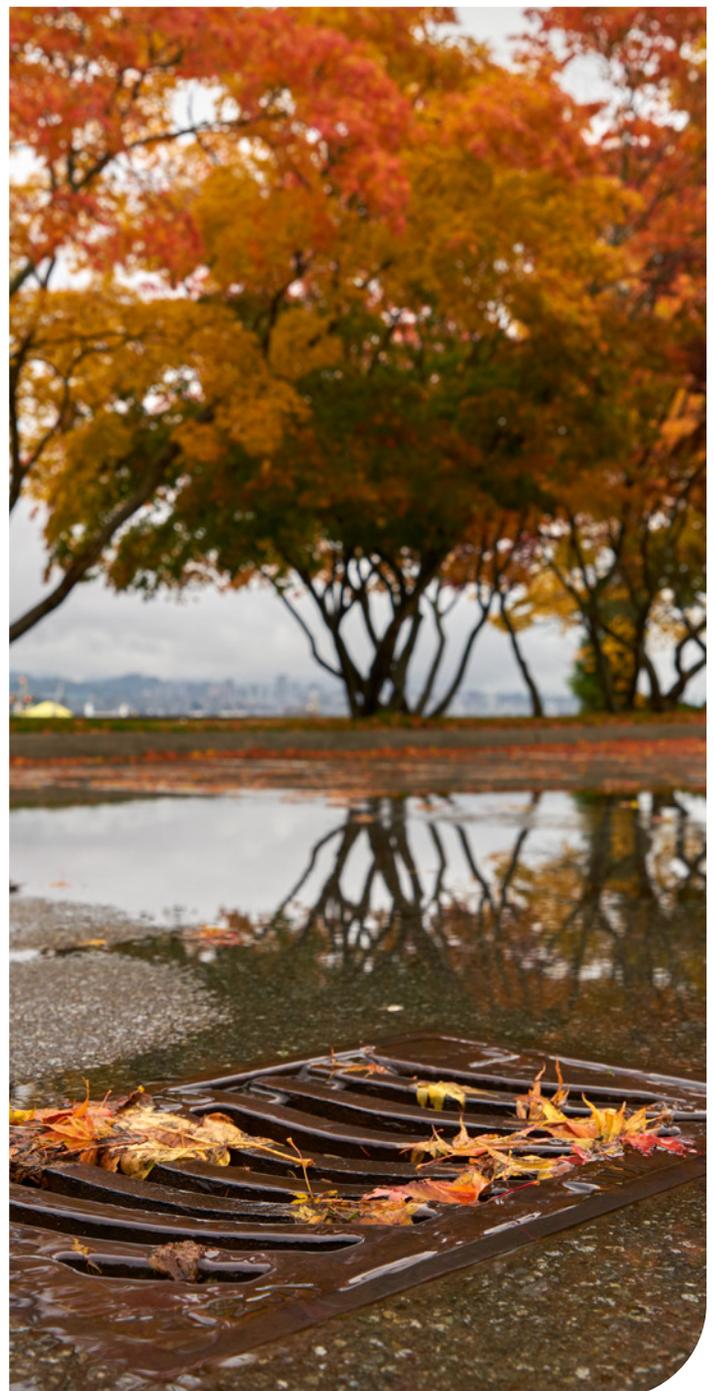
Actionable plans with measurable outcomes are a catalyst to transform innovative ideas to successful realities.

Over the last eight years, our survey respondents have consistently indicated funding adequacy, aging infrastructure, public awareness, increasing regulations and nutrient/TMDL requirements as part of the top five ranked challenges. For the first time, respondents in this survey have ranked Workforce Development and Succession Planning as part of the top five ranked issues. It is an important recognition that utilities consider workforce development as vital to effective stormwater management.

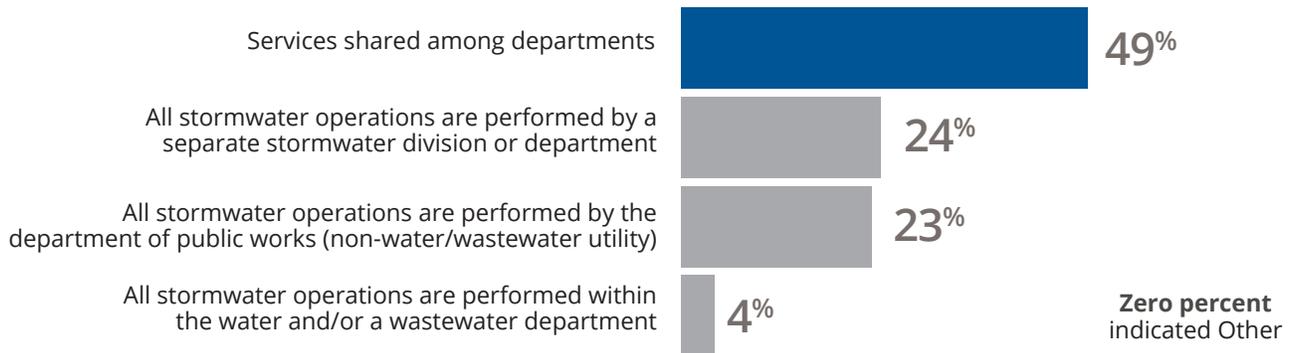
In respect to planning, the survey results indicate an interesting difference between the larger MS4 Phase I group of utilities and the smaller MS4 Phase II group of utilities.

Over 73% of the respondents in each of these two groups indicated aging infrastructure as one of the two highest ranked stormwater management issues. However, while 63% of the respondents in the MS4 Phase I group indicated having a stormwater asset management plan, only 35% of the respondents in the MS4 Phase II group had a stormwater asset management plan. Similarly, only 29% of these MS4 Phase II groups indicated having an emergency response plan.

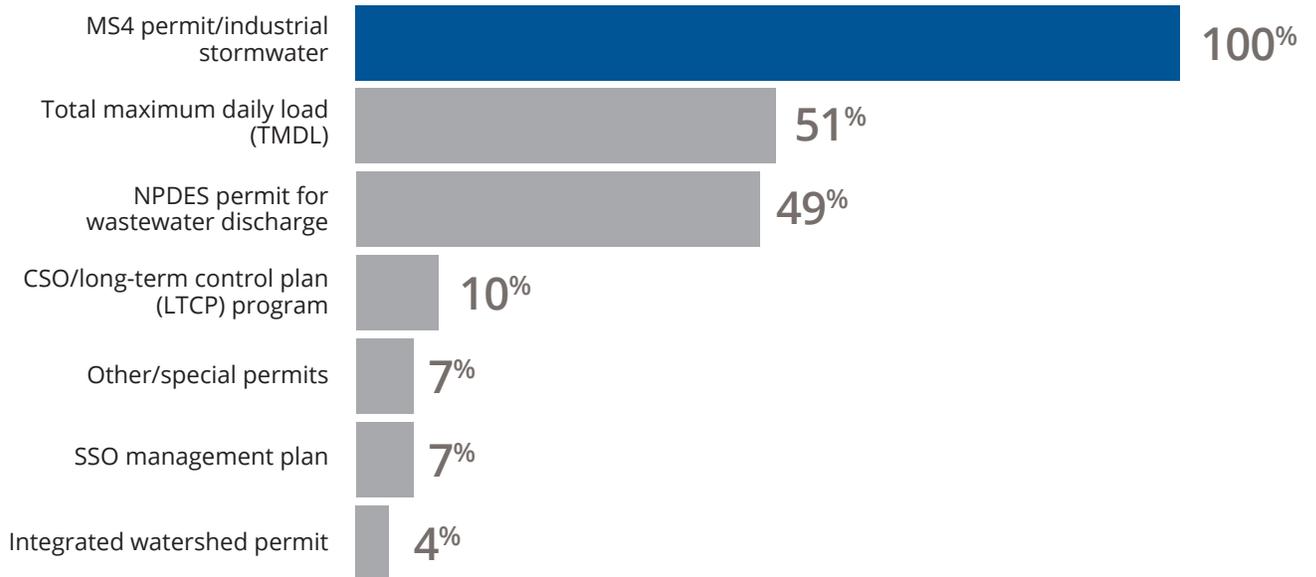
Smaller utilities must adopt standard asset management best practices to effectively manage aging infrastructure. Such an approach will not only help the utility leaders make a compelling case for increased funding but also help maximize the value of their capital investments by targeting it toward critical and prioritized capital projects. The recent pandemic further highlights the criticality of having emergency response plans to be agile and efficient in handling emergencies.



8. Please indicate how your current stormwater management operations (excluding street sweeping) are performed. (Select one)

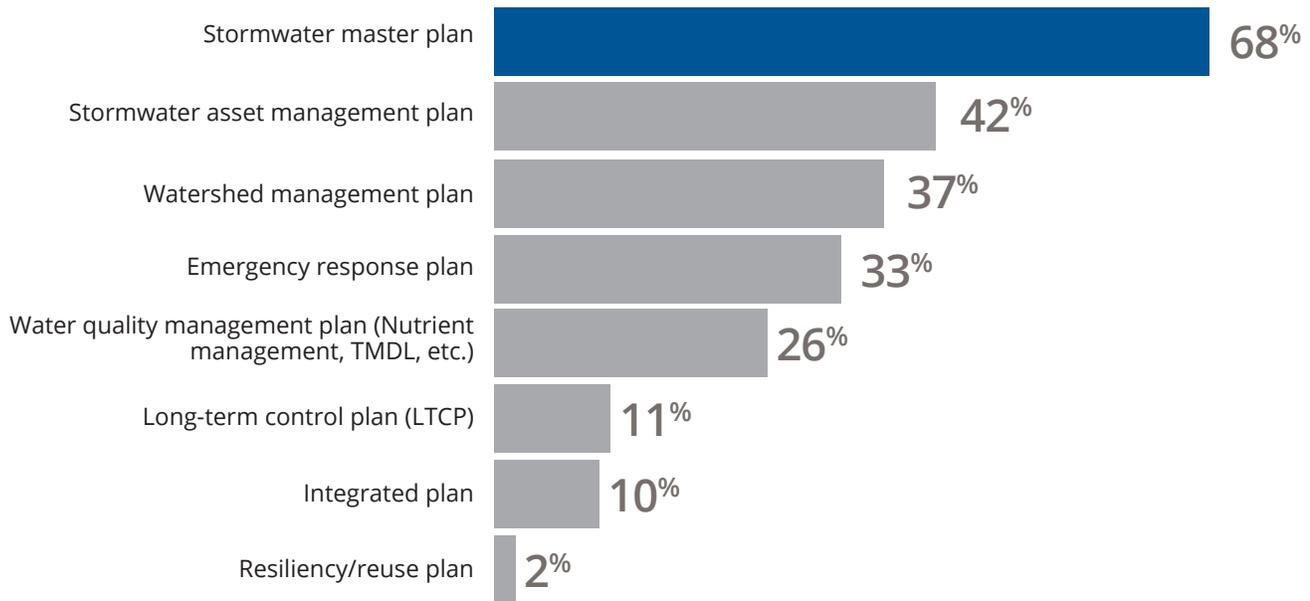


9. What regulatory permit requirements do you currently have to comply with? (Select all that apply)

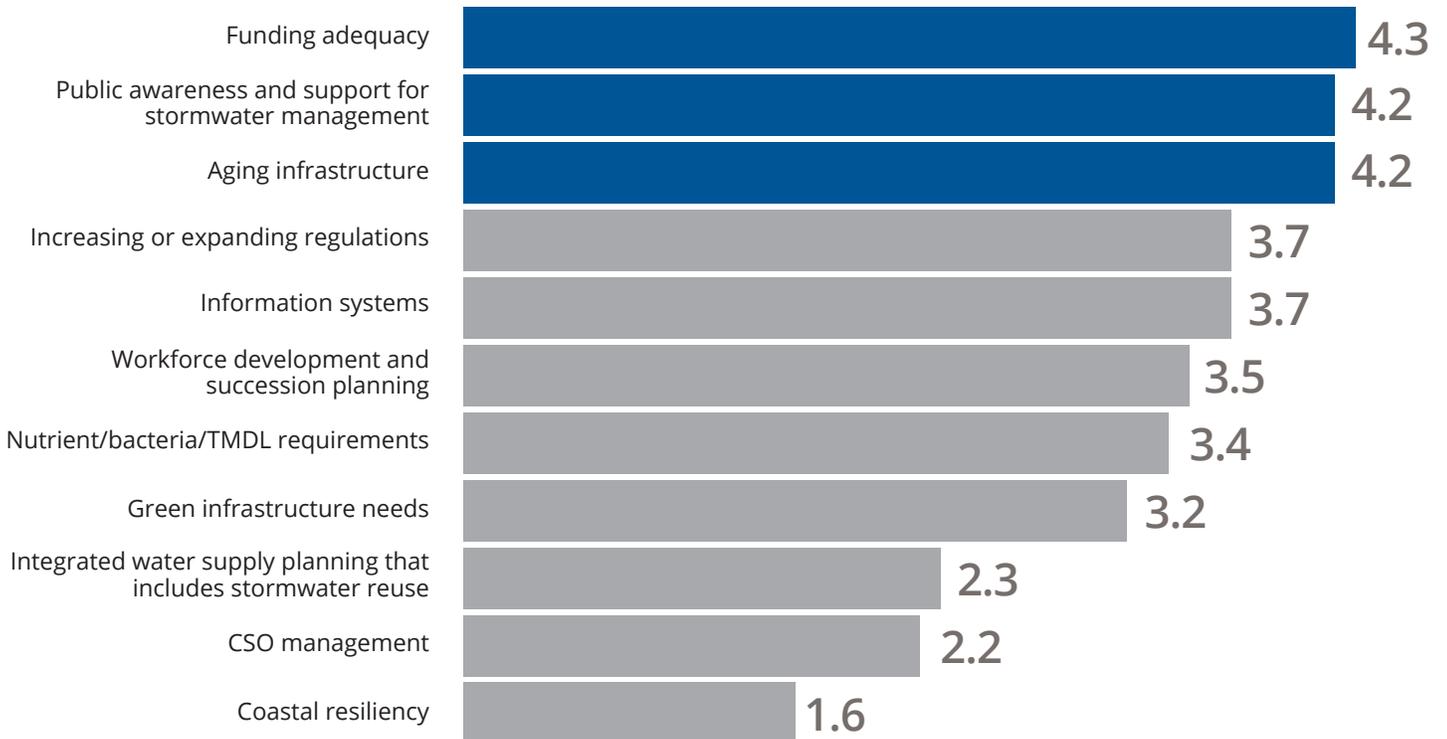


Percentage based on the number of utilities that indicated they have some type of permit.

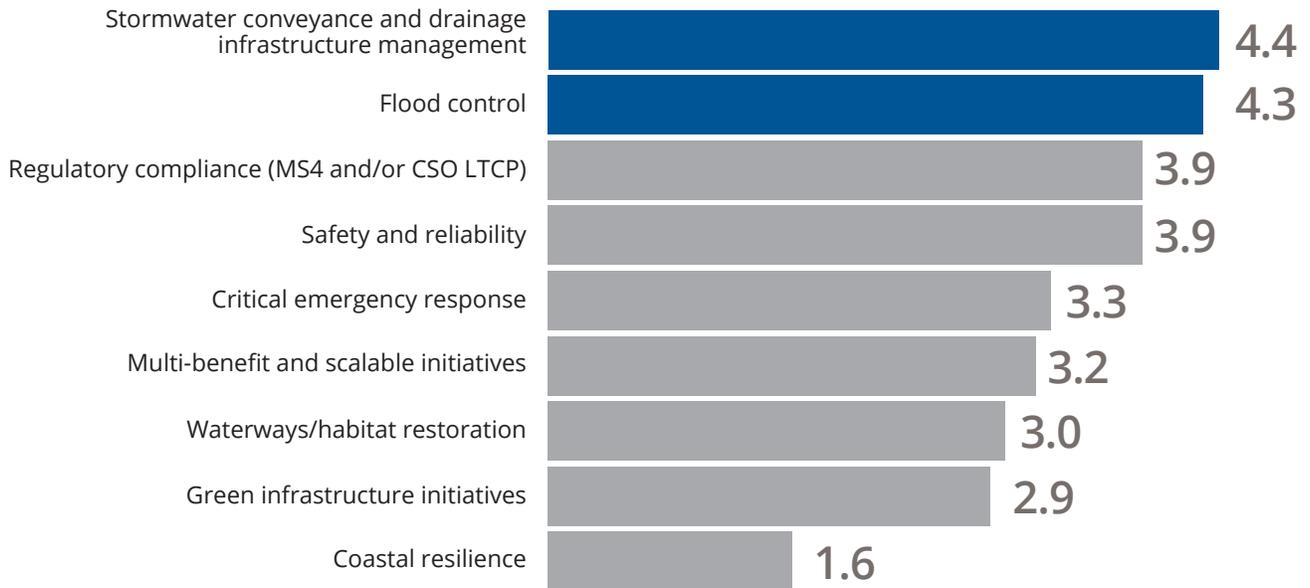
10. What types of plans has your utility developed? (Select all that apply)



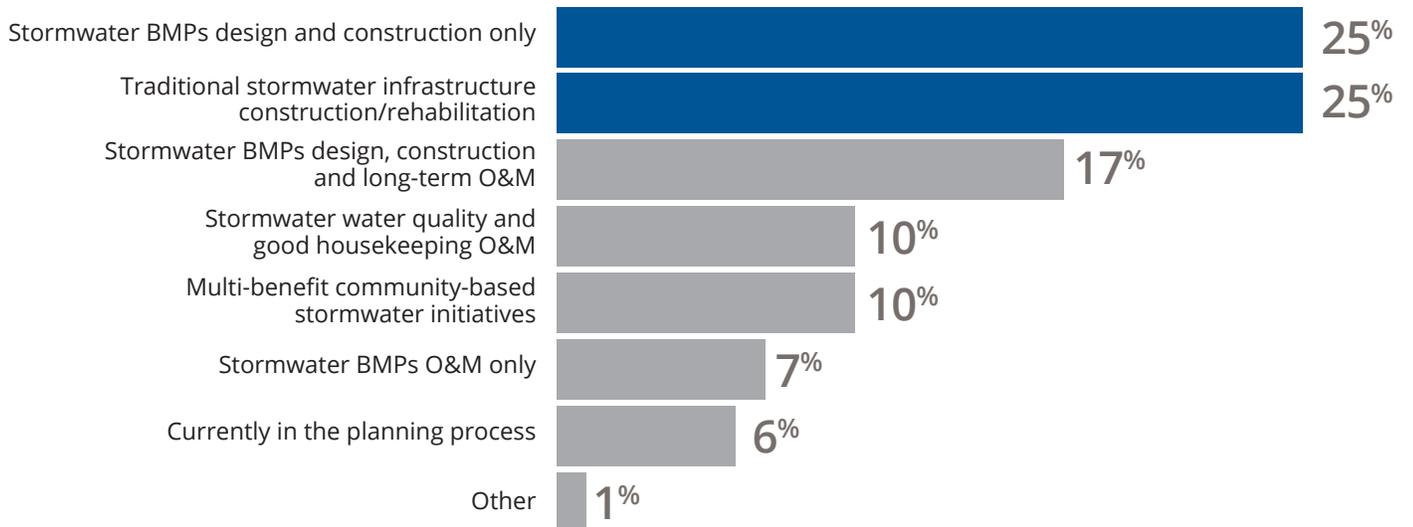
11. Please rank the issues listed below in order of importance for enhancing your utility's stormwater management. (1 = Least important; 5 = Most important)



12. Please rank how strongly the following issues drive capital program prioritization and the level of annual capital spending decisions within your stormwater utility. (1 = Very weak; 5 = Very strong)



13. Have you entered into any public-private partnership agreements for the provision of the following public utility services? (Select all that apply)



Section 3

Financing and Accounting

Financing and Accounting

Revenue certainty with dedicated user fee funding mechanisms helped utilities expand their stormwater management services, augment resources and alleviate the need to compete with other general fund supported priorities, as seen first-hand by the utility leaders that participated in the featured stormwater roundtable discussion.

While user fee funding can provide the revenue stability that utilities seek, rates need to be updated in a timely manner to fully align with a utility's forecasted revenue requirements. Funding adequacy continues to be a key challenge as nearly one-third (31%) of the respondents indicate that funding that they currently generate is inadequate to meet both their O&M and capital revenue requirements and 42% indicate that they can cover all of their O&M, but only limited levels of capital needs.

It should be noted that the mix of utilities that responded to this survey is different than our 2018 survey. However, the maximum revenue per capita reported in this survey is consistent with what we found in the 2018 survey. In this year's survey, we posed a new question to understand what activities utilities would focus on if they had adequate funding. Sixty percent (60%) of the respondents indicated proactive repair and rehabilitation, water quality improvements and developing resiliency measures to mitigate flooding as the three key potential areas of focus. The percent of utilities (22%) that reported using debt financing to fund capital improvements is higher than what we have seen in the previous three surveys.

14. What is the total annual stormwater revenue generated per capita by your stormwater utility (in dollars)?



*Indian Creek Village, with the lowest population among the respondents (86 residents), has a much higher revenue per capita than the maximum indicated.

Note: The mix of utilities is not the same for each survey.



The success of each utility's stormwater management plan is dependent upon a stable, certain and dedicated funding stream.

15. Please provide the approximate percent of revenue that your utility receives from each source listed.

	Over 75%	50% - 75%	25% - 50%	Less than 25%
Stormwater user fees	95%	3%	1%	1%
Stormwater impact fees	0%	0%	8%	92%
Miscellaneous stormwater fees	0%	0%	8%	92%
Taxes	25%	0%	25%	50%
Grants	0%	0%	0%	100%
Other	15%	0%	0%	85%

16. From the list below, please select all the stormwater management activities that you include in your annual O&M budget. (Select all that apply)

Description	Stormwater Utility Budget
1. Stream/habitat rehabilitation	91%
2. Water quality monitoring	85%
3. Public education	92%
4. Street sweeping	66%
5. Inlets/outfalls maintenance	83%
6. Combined sewer conveyance maintenance	66%
7. Separate storm sewer conveyance maintenance	90%
8. BMP inspections/maintenance (publicly owned BMPs)	92%
9. BMP Inspections/maintenance (In privately owned BMPs)	90%
10. Illicit discharge detection and elimination (IDDE) programs	96%
11. Erosion and sediment control	91%
12. Construction and/or post-construction monitoring	83%
13. Planning and engineering	83%
14. Rehabilitation and replacement	82%
15. Other	50%

Percentage based on the number of utilities that indicated the activity is included in their annual budget.

17. Please provide an approximate percentage of funding from each source used to finance your utility's stormwater capital improvement program.

	2014	2016	2018	2020
Majority cash financed	85%	88%	87%	78%
Majority debt financed	15%	12%	13%	22%

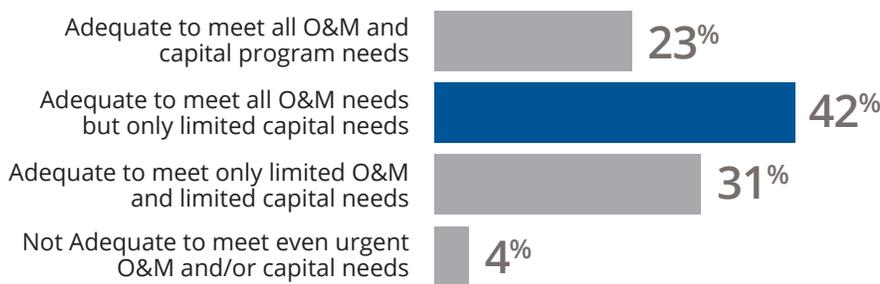
Note: The mix of utilities is not the same for each survey.

18. Please provide an approximate percentage of funding from one or more of the following sources that are used to finance your utility's stormwater capital improvement program.

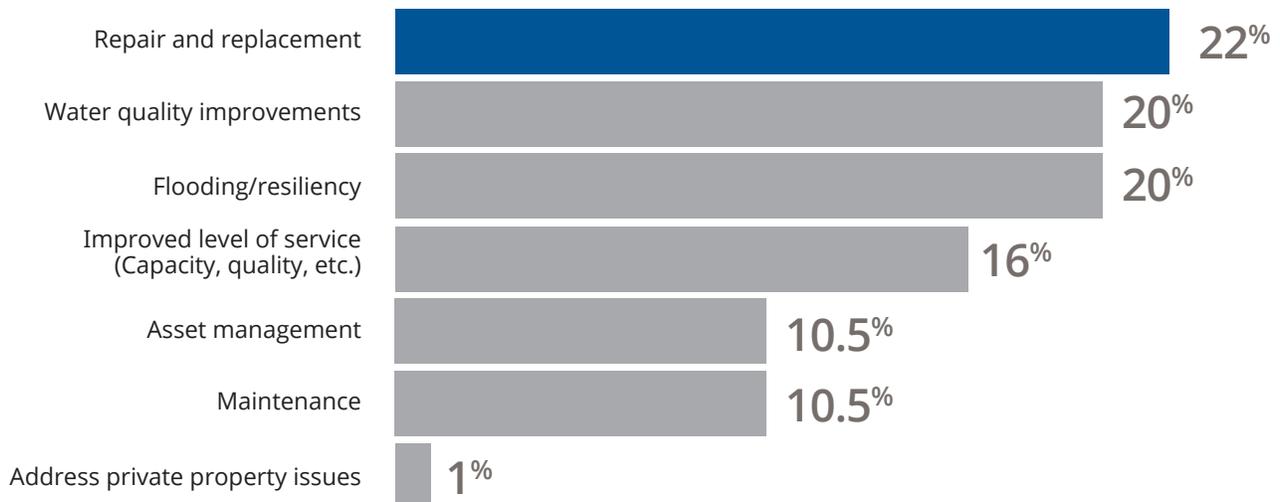
Majority Financed	22%	Majority Cash Financed	78%
General obligation (GO) bonds	18%	Stormwater user fees	84%
Wastewater or stormwater revenue bonds	11%	Grants	26%
Other debt	8%	Other cash	8%
Combined stormwater/other bonds	5%	Permitting and other fees	7%
Sales tax bonds	0%	New development impact fees	7%
Benefit district bonds	0%	Ad valorem taxes	3%
		Sales taxes	1%
		Special assessments districts	1%

Percentage based on the number of utilities that responded to the question.

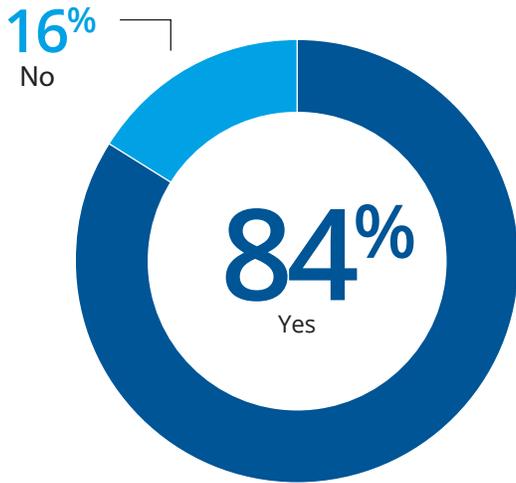
19. How would you rate your utility's stormwater funding to meet the utility's needs? (Select one)



20. If you had adequate funding, what types of O&M activities and/or capital projects would you pursue?

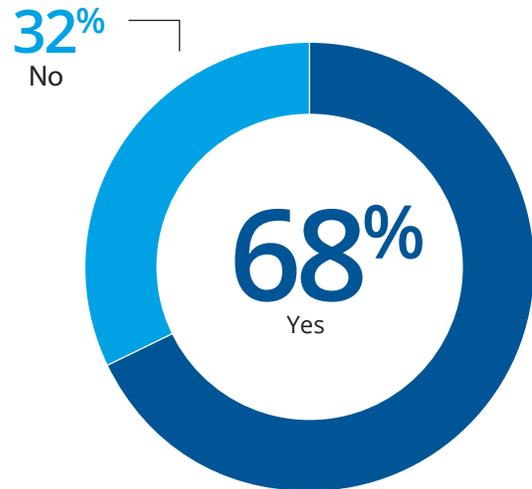


21. Does your state have enabling legislation that authorizes municipalities to charge a stormwater user fee?



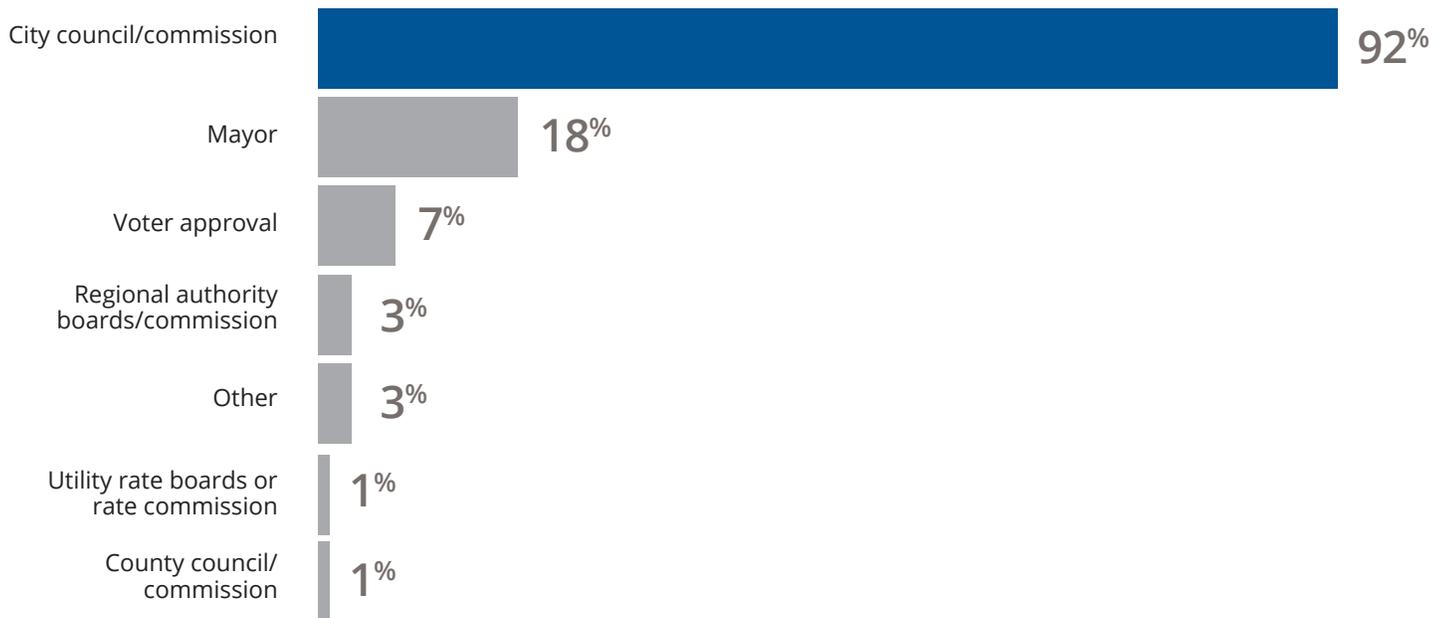
Percentage based on the number of utilities that responded to the question.

22. Does your state have enabling legislation that authorizes independent public utilities such as authorities, boards, and sewerage commissions/districts to charge a stormwater user fee?



Percentage based on the number of utilities that responded to the question.

23. What is the governing authority that approves your stormwater user fee rates and/or stormwater millage fee? (Select all that apply)



Zero percent indicated public utilities commission (PUC)

Percentage based on the number of utilities that responded to the question.

Section 4

Stormwater Rate Structure and Billing

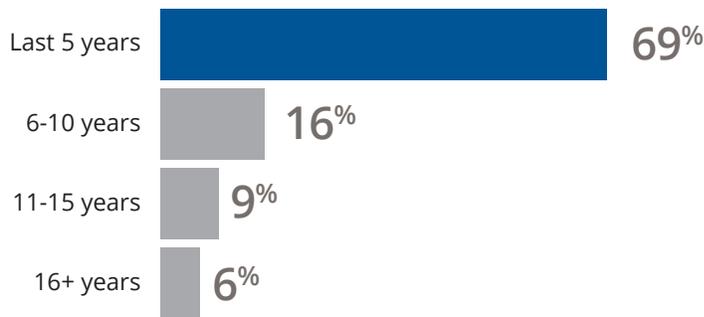
Stormwater Rate Structure and Billing

The median average monthly single-family residential charge continues to increase relative to our previous biennial surveys, with the charge increasing to \$6.08 from the \$5.71 that we reported in our 2018 stormwater survey.

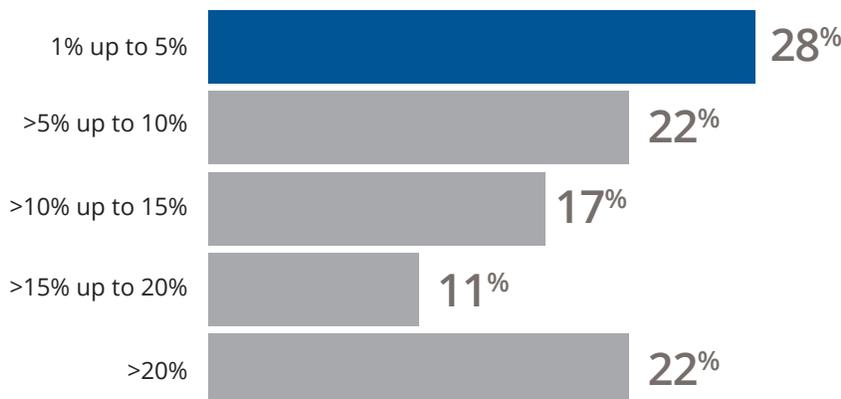
Overall, the response results on many of the rate structure and billing parameters are fairly consistent with that of the previous two surveys. For instance, the median gross area and impervious area that utilities have reported over the last four surveys have remained within 7,800 to 8,600 sq ft and 2,300 to 2,700 sq ft, respectively. Similarly, a majority of the respondents (68%) indicated that they do not offer any customer assistance or discount programs. While 87% of the respondents indicate using the impervious area as the basis for determining stormwater charges, 54% of the utilities indicate they do not have any defined protocol to update and maintain the billing data that supports stormwater billing. As land use and parcel attributes are dynamic and subject to changes, it would be worthwhile for utilities to establish best practice data management for effective revenue generation and equitable billing.

As affordability is becoming an increasingly critical issue in the water and sewer sector, in this survey, we included a question on affordability. Sixty-eight percent (68%) of the respondents of the respondents indicated that their customers perceive the stormwater charges to be affordable and 17% indicated that they do not know how their customers perceive the charges.

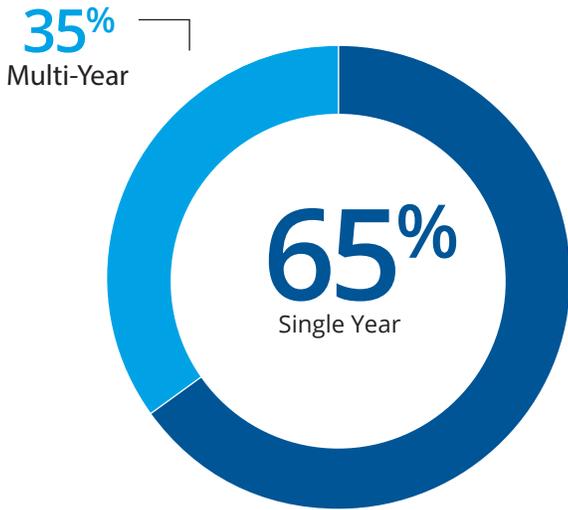
24. Please indicate the year in which you last increased your stormwater user fee.



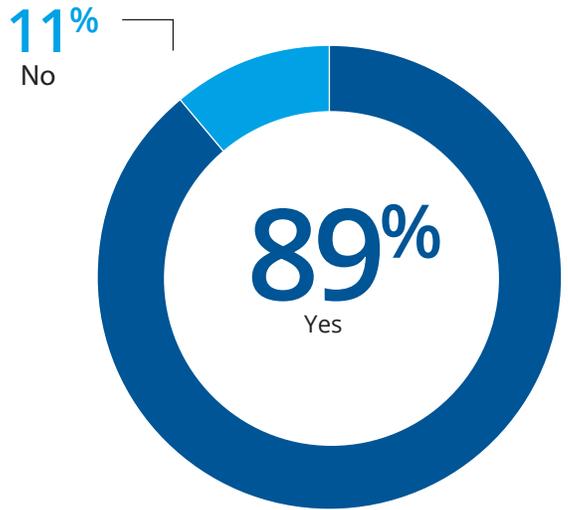
25. How have your stormwater user fees increased in the last five years? (Select One)



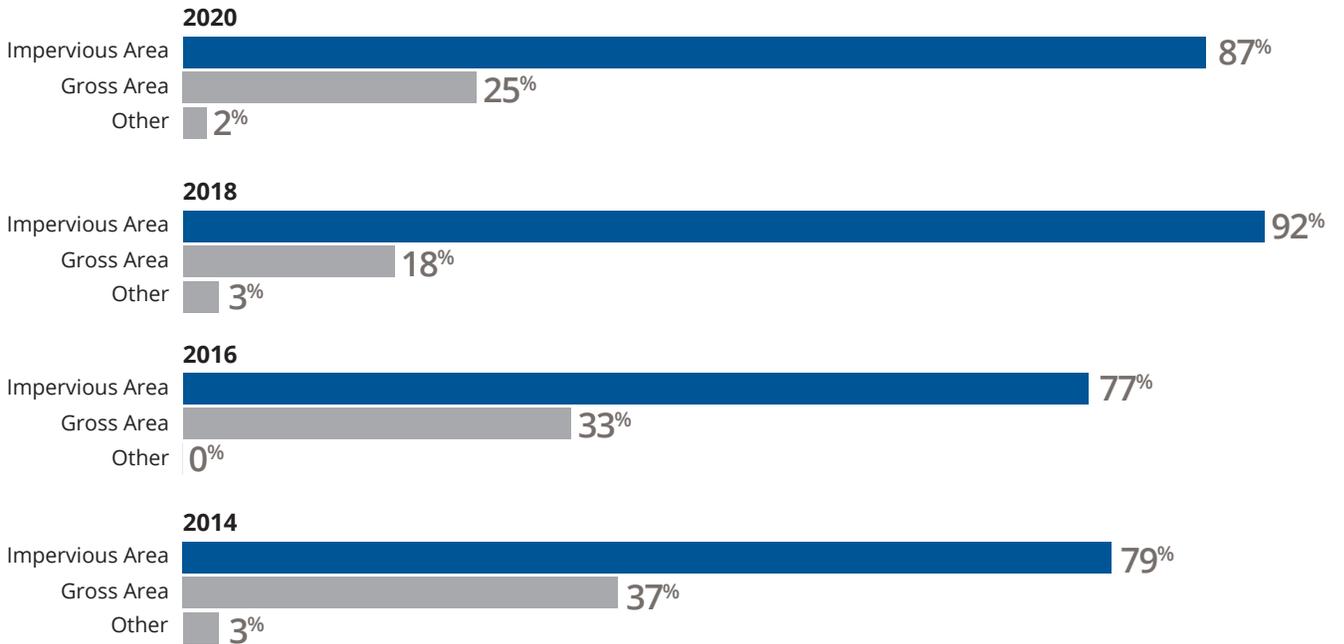
26. What type of rate increase is your utility able to obtain from the approving body? (Select One)



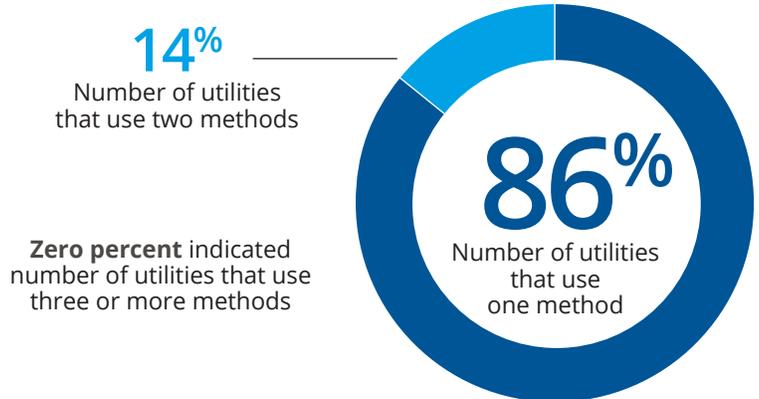
27. Is your stormwater user fee based on some form of parcel area such as gross and/or impervious area?



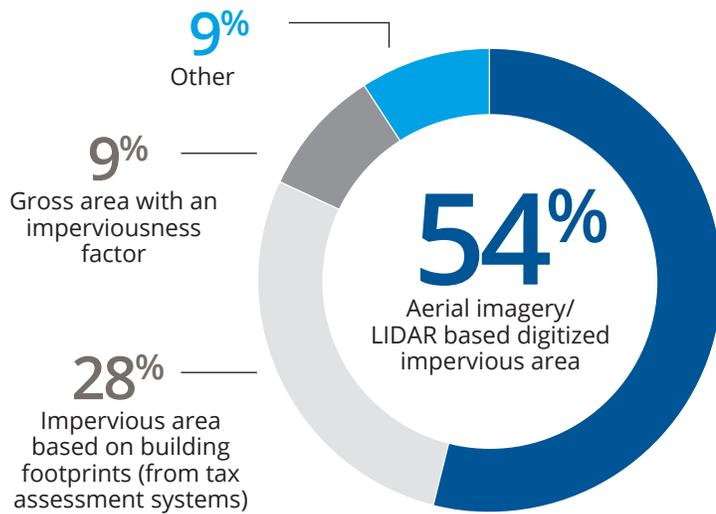
28. What is the basis for calculating your parcel area based stormwater user fees? If a combination of methods is used, please check all applicable methods.



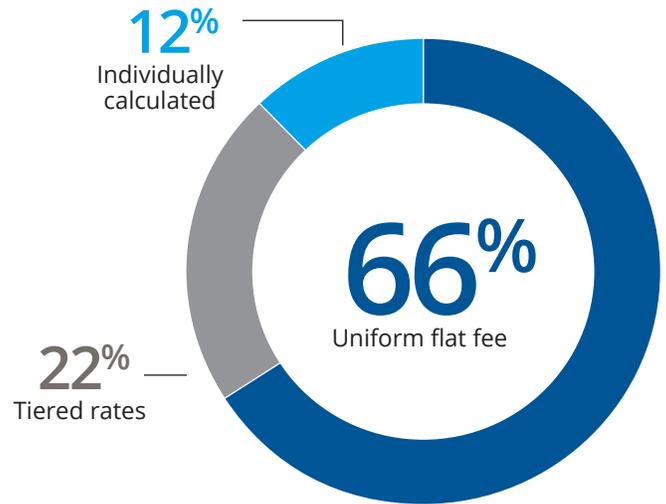
Note: The mix of utilities is not the same for each survey.



29. If your fee is based on impervious area, what is the basis for calculating the impervious area? (Select all that apply)



30. What type of rate structure does your utility have for the family residential parcels? (Select all that apply)



31. What is your utility's average single family residential parcel square footage? (Includes attached residential up to four dwelling units)

Average Gross Area (sq ft)	2014	2016	2018	2020
Minimum	2,105	2,266	2,480	2,074
Maximum	22,500	20,000	43,560	22,000
Median	8,000	8,000	7,801	8,599

Average Impervious Area (sq ft)	2014	2016	2018	2020
Minimum	794	786	910	910
Maximum	7,500	5,000	5,700	13,000
Median	2,368	2,550	2,618	2,629

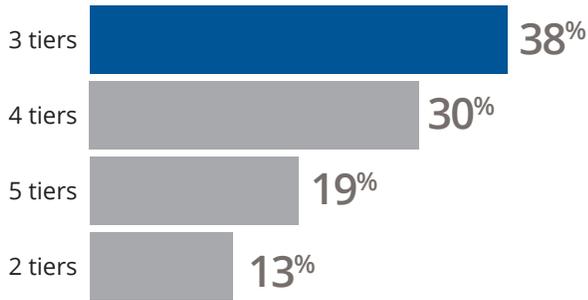
Note: The mix of utilities is not the same for each survey.

32. What is your average monthly residential stormwater fee?

City	State	2020 Average Monthly Residential Charge
DuPont	WA	\$25.00
Pacific	WA	\$23.82
Bremerton	WA	\$17.54
Fort Collins	CO	\$17.00
Satellite Beach	FL	\$16.67
Redmond	WA	\$16.56
Philadelphia	PA	\$15.80
Milton	WA	\$15.50
Waconia	MN	\$14.55
Loveland	CO	\$14.53
Naples	FL	\$13.93
Austin	TX	\$13.57
Chattanooga	TN	\$12.69
Edgewater	FL	\$12.00
Lubbock	TX	\$11.18
Charlotte	NC	\$10.77
Medford	OR	\$10.25
Yelm	WA	\$10.25
Orlando	FL	\$9.99
Fridley	MN	\$9.86
Cape Canaveral	FL	\$9.00
Sussex	WI	\$8.76
Cincinnati	OH	\$8.28
Margate	FL	\$8.25
Silver Lake	OH	\$8.00
Silver Spring	MD	\$7.66
Lancaster	OH	\$7.64
Meadville	PA	\$7.50
Wilmington	DE	\$7.18
Cedar Rapids	IA	\$6.91
Tampa	FL	\$6.83
New Port Richey	FL	\$6.66
Georgetown	TX	\$6.50
Mansfield	TX	\$6.50
Whitewater	WI	\$6.17
Wilton Manors	FL	\$6.15
Marysville	OH	\$6.00
Miami Gardens	FL	\$6.00
Bloomington	MN	\$5.95

City	State	2020 Average Monthly Residential Charge
Charlottesville	VA	\$5.86
Olathe	KS	\$5.77
Santa Fe	NM	\$5.50
Roanoke	VA	\$5.40
Ramsey	MN	\$5.33
Sanitation District #1	KY	\$5.04
Altoona	IA	\$5.00
Raleigh	NC	\$5.00
Topeka	KS	\$5.00
North Miami Beach	FL	\$4.60
Lawrence	KS	\$4.50
Monroe	NC	\$4.50
Reedsburg	WI	\$4.30
Rock Hill	SC	\$4.25
Menasha	WI	\$4.17
Frisco	TX	\$4.14
Lakewood	CO	\$4.09
Cloquet	MN	\$4.00
St. Francis	WI	\$4.00
Indian Creek Village	FL	\$4.00
Griffin	GA	\$3.56
Newark	DE	\$3.54
Marshall	TX	\$3.50
Ravenna	OH	\$3.00
Wichita	KS	\$3.00
Kansas City	MO	\$2.50
West Miami	FL	\$2.50
Converse	TX	\$2.43
White Township	PA	\$2.00
Shelby County	TN	\$1.50
Goshen	IN	\$1.25
San Diego	CA	\$0.95
Omaha	NE	\$0.84

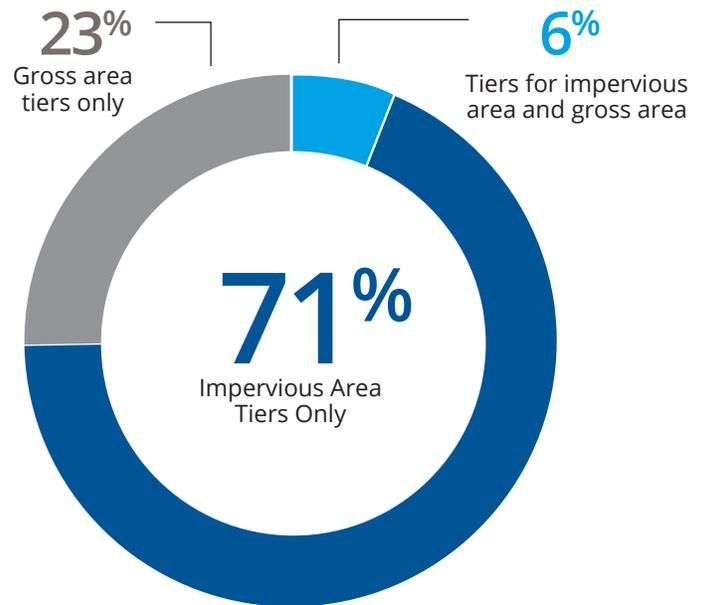
33. If you have a tiered residential rate structure, please indicate the total number of tiers.



Zero percent indicated 6 or more tiers

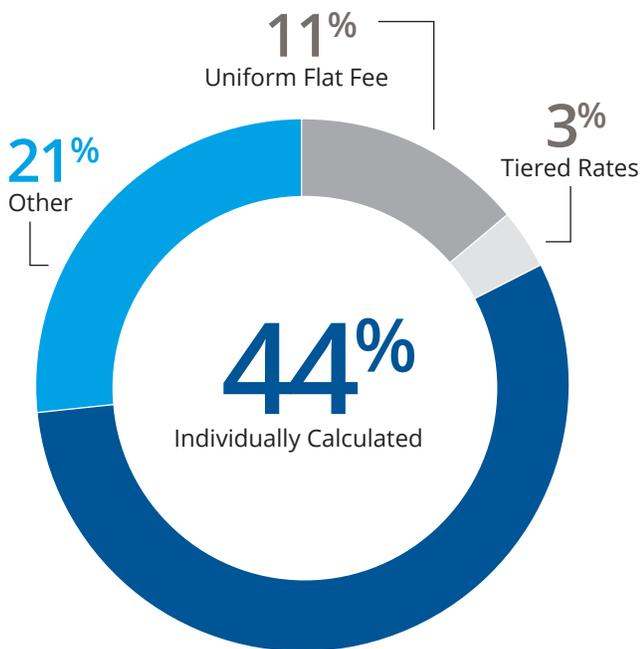
Percentage based on the number of utilities that indicated they had tiered rates in Q31.

34. If you have a tiered residential rate structure, what is the basis of the tiers? (Select one)



Percentage based on the number of utilities that indicated they had tiered rates in Q30.

35. What type of rate structure does your utility have for the non-residential parcels? (Select all that apply)



Percentage based on the number of utilities that responded to the question.

36. If you have a tiered non-residential rate structure, please indicate the total number of tiers.



Zero percent indicated 3 tiers

Percentage based on the number of utilities that indicated they had tiered rates in Q35.

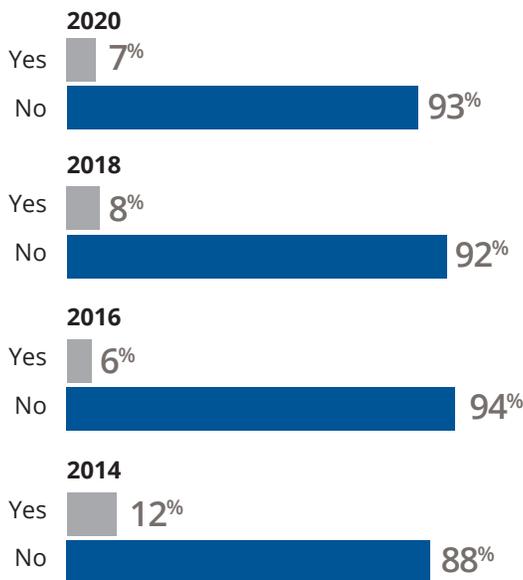
37. If you have a tiered non-residential rate structure, what is the basis of the tiers? (Select one)



Zero percent indicated gross area tiers only and tiers for impervious area and gross area

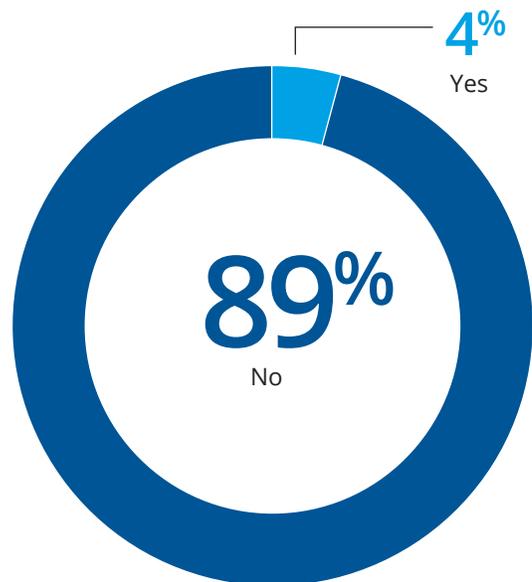
Percentage based on the number of utilities that indicated they had tiered rates in Q35.

38. Does your stormwater rate structure include a separate billing, collection or service charge?

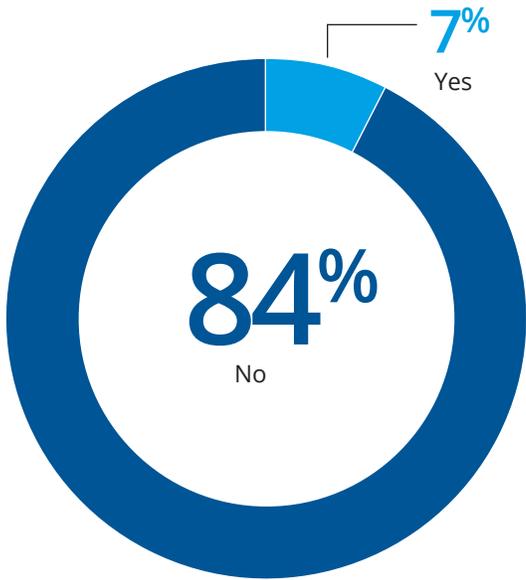


Note: The mix of utilities is not the same for each survey.

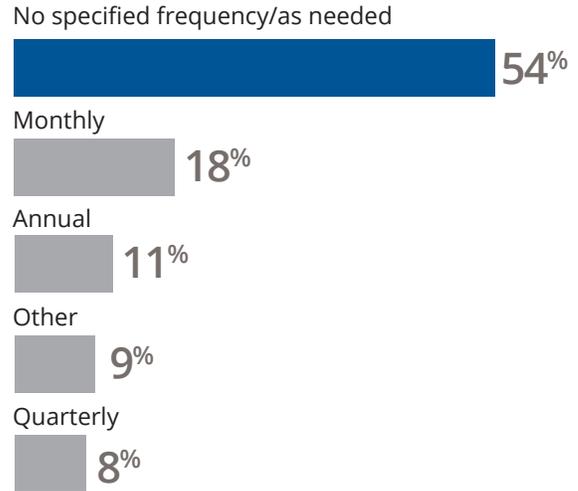
39. In your stormwater rate structure, do you have rates that differ by service area, zone or watersheds?



40. Are one-time impact or capital recovery fees applied to new stormwater utility customers or new development?

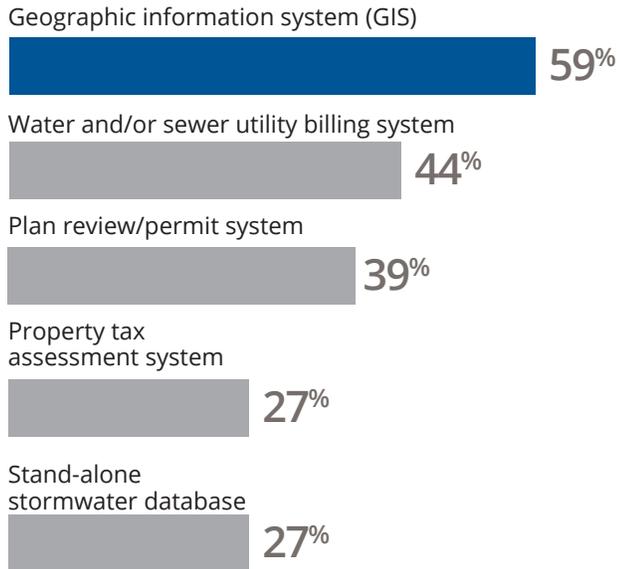


41. How frequently does your utility update customer parcel information, such as customer classes and gross and impervious areas specific to stormwater billing? (Select one)



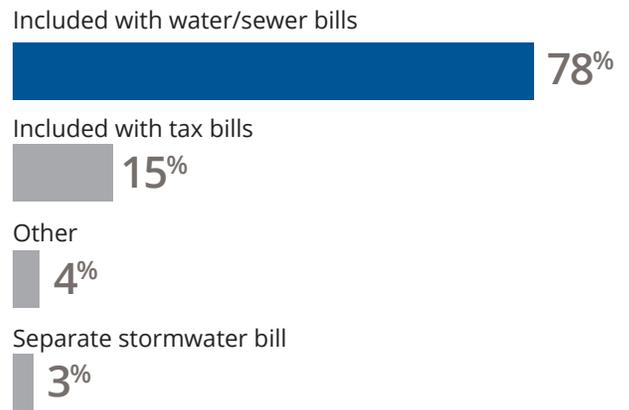
Zero percent indicated Semi-annual

42. Which of the following systems do you use to process and maintain gross and impervious area billing units, specific to stormwater billing? (Select all that apply)



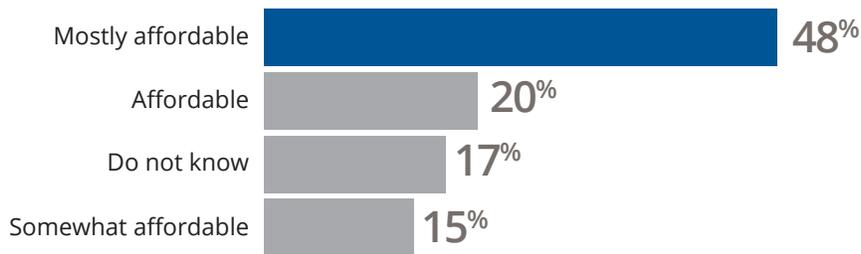
Zero percent indicated Other

43. How are the stormwater user fees billed? (Select one)



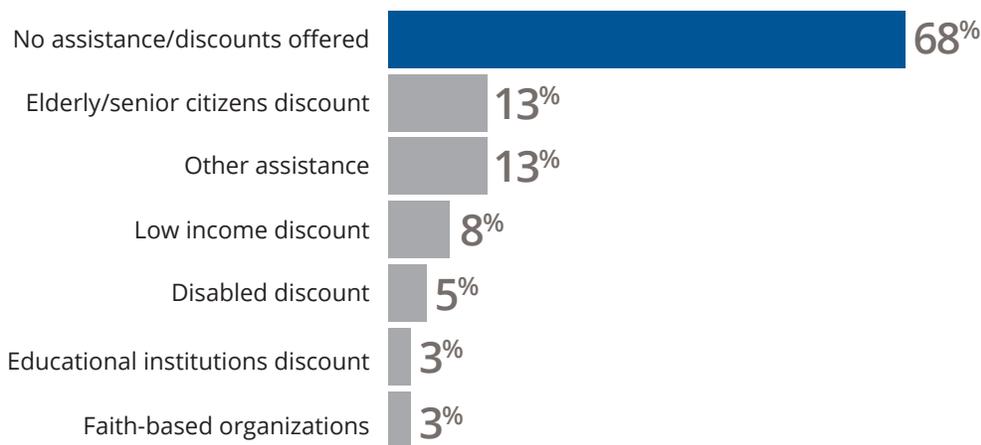
Percentage based on the number of utilities that responded to the question.

44. From an affordability perspective, how do your residential customers perceive your stormwater fee?



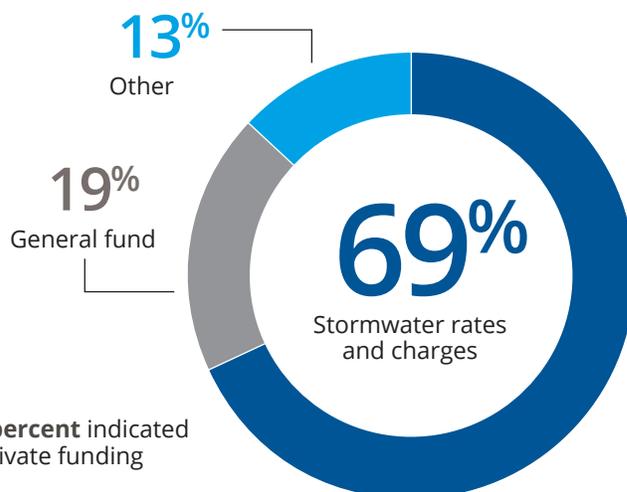
Zero percent indicated Not at All Affordable

45. Does your utility offer any customer assistance for stormwater fees, such as discounts or other fee assistance? Stormwater discounts are not the same as stormwater credits, incentives, or exemptions. (Select all that apply)



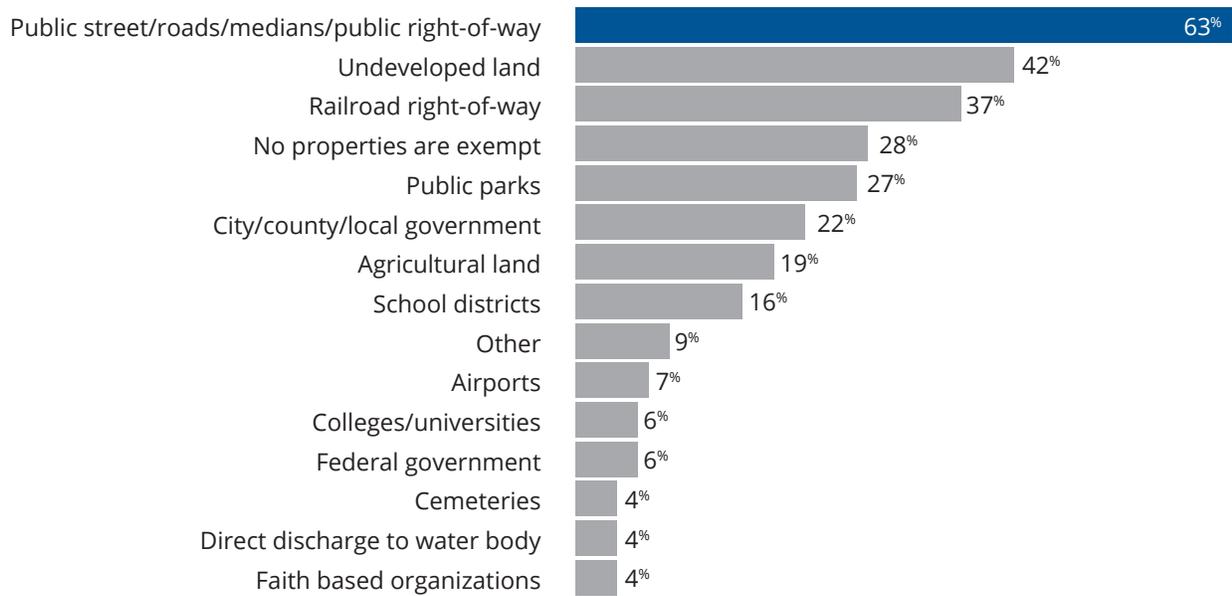
Zero percent indicated Land Bank Properties and Community Gardens

46. How do you fund customer assistance programs (discounts or other assistance)?

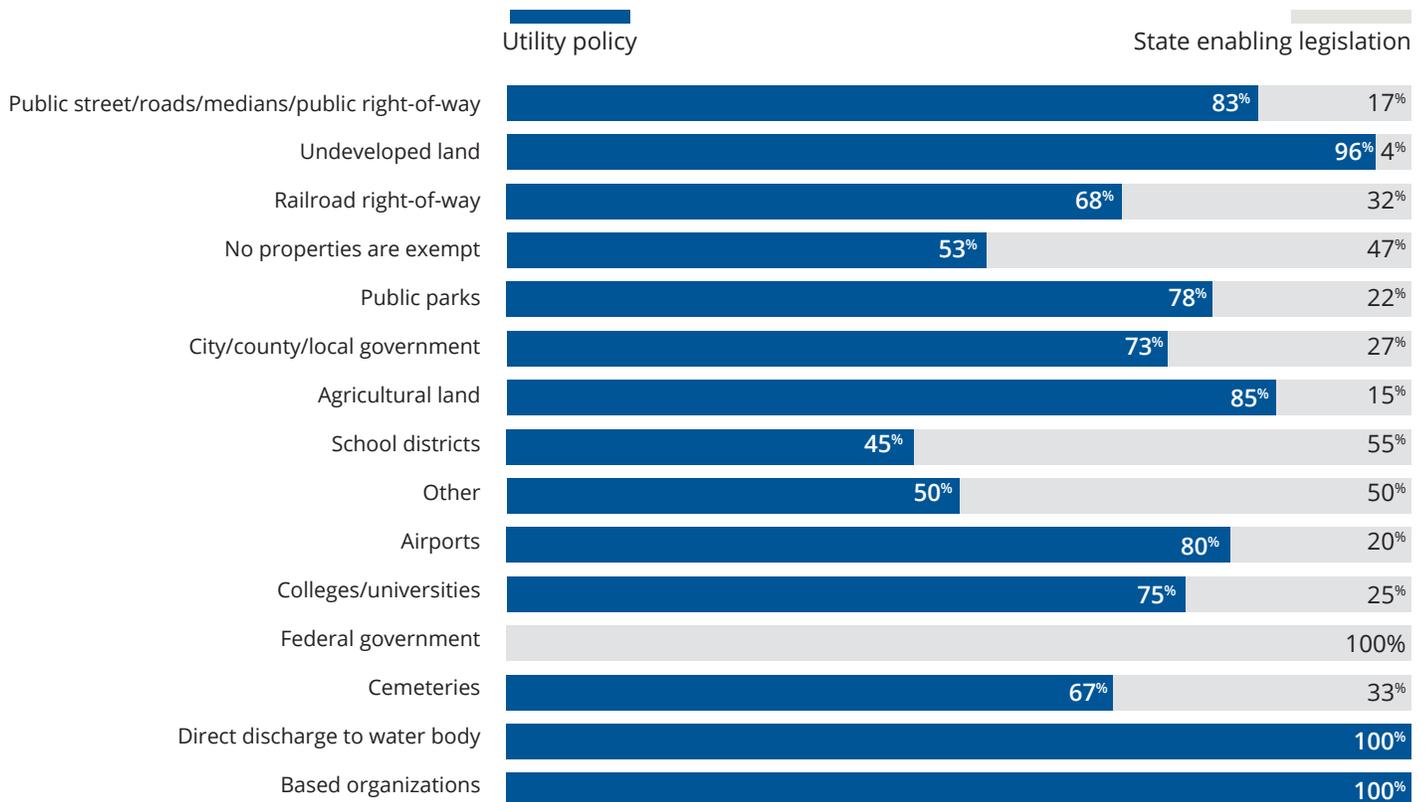


Zero percent indicated Private funding

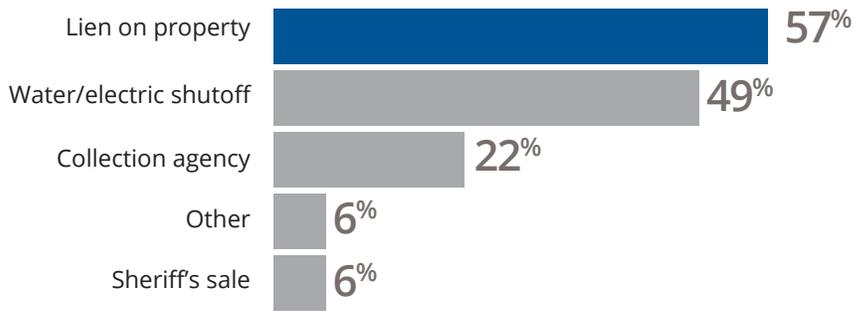
47. Are any of the following types or classes of properties exempt from stormwater user fees? For each item you select, please also indicate if that specific exemption is based on utility policy and/or authorized by state enabling legislation. (Select all that apply)



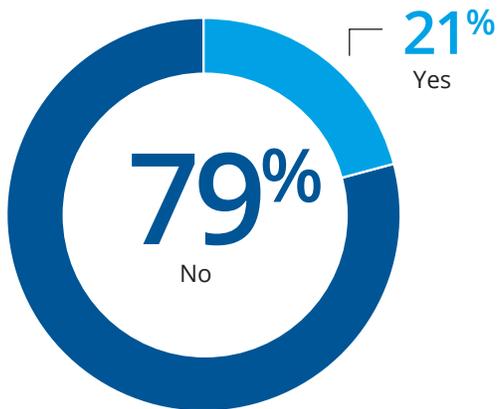
Percentage based on the number of utilities that responded to the question.



48. How are payments enforced? (Select all that apply)



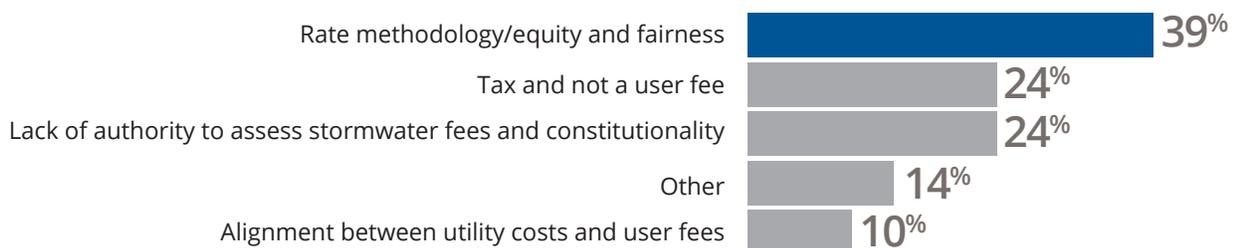
49. Has your utility's stormwater user fees ever faced a legal challenge?



50. Please indicate the customer/class that challenged your stormwater user fee (Select all that apply)



51. What was the basis of the challenge? (Select all that apply)



Section 5

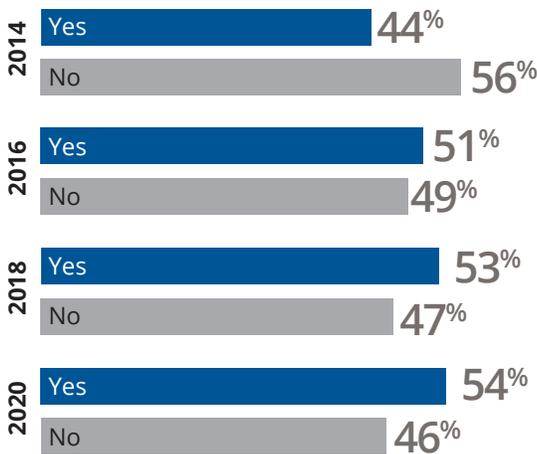
Stormwater Credits and Incentives

Stormwater Credits and Incentives

The complex interplay of benefits and challenges, inherent in designing and implementing a stormwater credits and incentives program, influences the objectives, policies and technical criteria that stormwater utility leaders define when establishing the program.

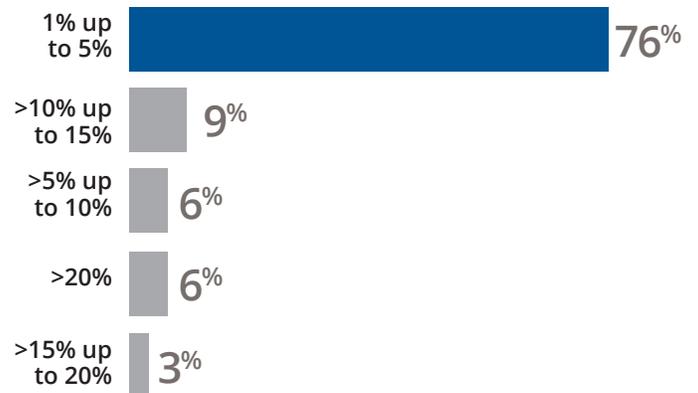
Stormwater credits and incentives program can be defined to meaningfully balance diverse objectives of fostering the perception of equity, offering voluntary fee reduction options, incentivizing private stormwater management and minimizing revenue impact. As the survey results indicate, the percentage of survey respondents that offer credits has been fairly steady at just over 50% since our 2016 survey. While incentives in the form of monetary grants are less prevalent, utilities are more inclined to offer incentives in the form of cost sharing options and design consulting assistance to private property owners that are interested in pursuing onsite stormwater management practices.

52. Does your utility have a stormwater credit program?

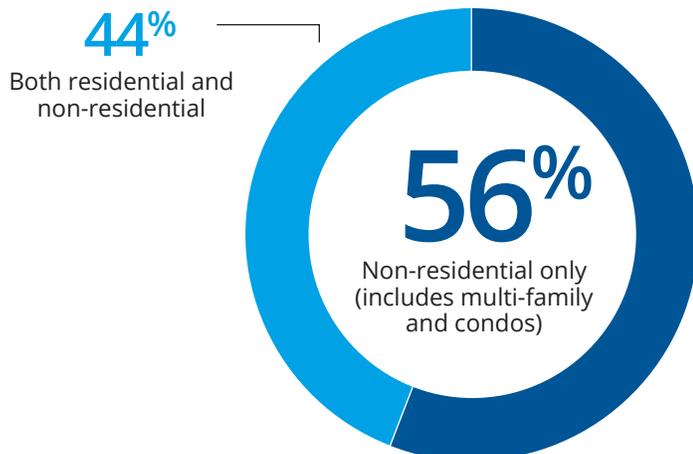


Note: The mix of utilities is not the same for each survey.

53. Currently, what percentage of your utility's total stormwater parcels receive credits?



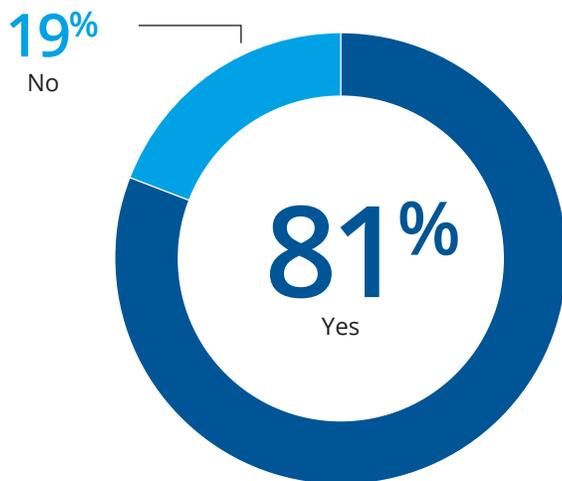
54. Please indicate the classes of parcels that are offered stormwater credits. (Select one)



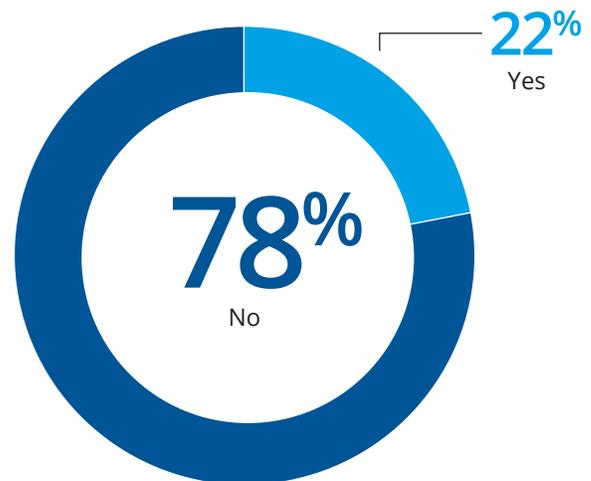
55. Please indicate the maximum allowable credit that you allow for each of the following stormwater management actions.

MAXIMUM ALLOWANCE CREDIT	Over 75%	50% - 75%	25% - 50%	Less Than 25%
Types of Credits	Percent of Respondents			
Volume reduction	28%	39%	22%	11%
Peak flow reduction	13%	13%	37%	37%
Water quality control	15%	23%	47%	15%
NPDES permit compliance	0%	17%	33%	50%
Education	0%	14%	43%	43%
Direct discharge to a surface water body (without using a municipal stormwater system)	43%	28%	0%	29%
Good housekeeping practices (sweeping, oil separation)	0%	33%	0%	67%
Undeveloped/zero discharge	80%	20%	0%	0%
Other	17%	33%	17%	33%

56. Is there a maximum total credit that is offered?



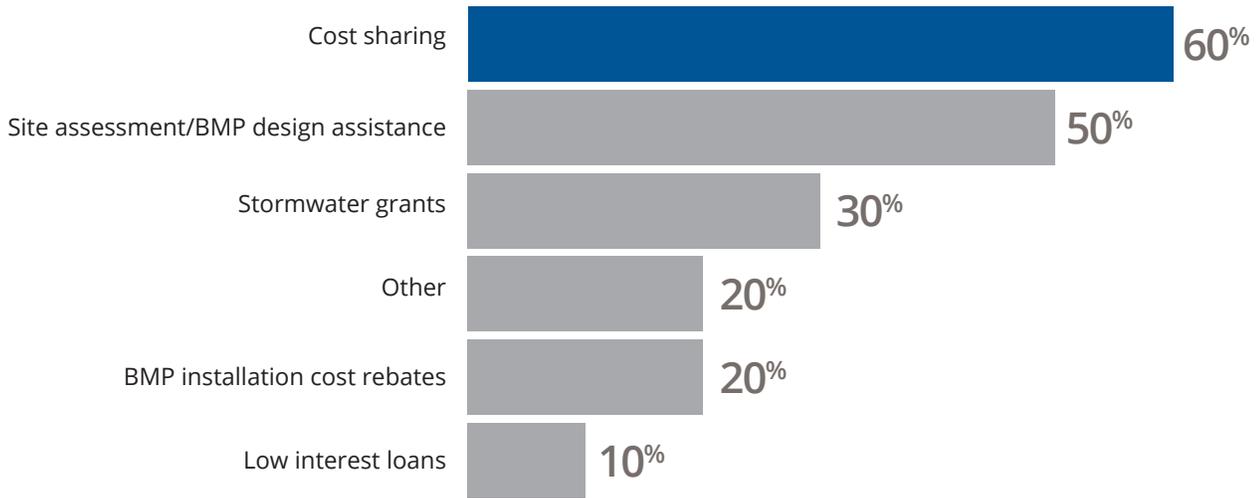
57. Do you offer credits for direct surface discharge to a water body?



58. What is the maximum stormwater fee reduction?

Maximum Stormwater Credit	Over 75%	50% - 75%	25% - 50%	Less Than 25%
Percent of respondents	27%	43%	23%	7%

59. Do you offer any of the following incentive programs? (Select all that apply)



Section 6

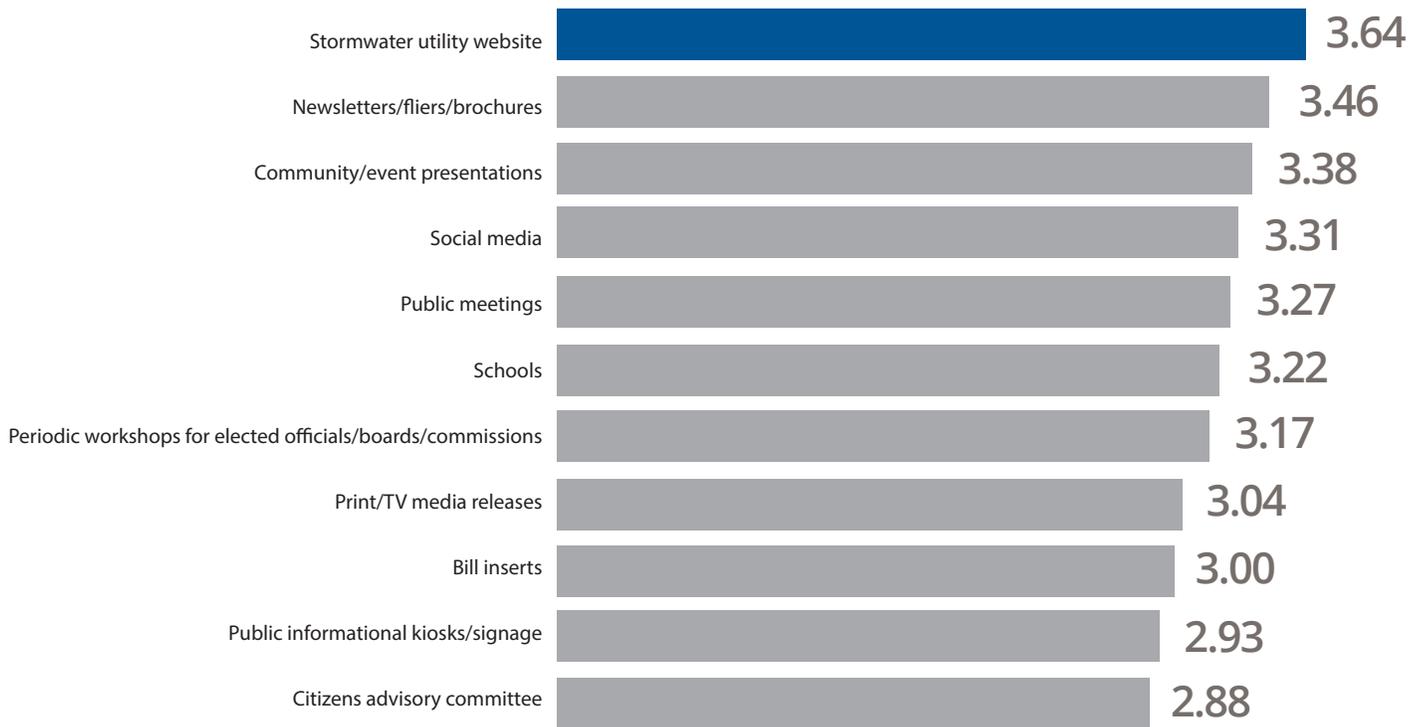
Public Information and Education

Public Information and Education

Enhancing the awareness of stormwater needs, community benefits and the concept of stormwater user fee funding is essential to garner and sustain rate payer support.

We continue to assess the communication trend in terms of what channels of communication utility leaders deem more effective in securing stakeholder support. For the first time, respondents have ranked the stormwater utility website as the most effective channel followed by the distribution of print media and community presentations. These top three ranked channels of communication could imply that utility leaders are beginning to find “targeted communication” through both newsletters, brochures and social media to be more effective than the more generic print, digital media, bill inserts and public meetings. These technology driven channels could also prove to be more effective as stakeholders gravitate more toward “on-demand” consumption of information and prefer ready access to information.

60. Please rank the effectiveness of the specific activities you have undertaken to secure stakeholder approval and support for stormwater user fees. (1 = Least Effective, 5 = Most Effective)



Black & Veatch's Comprehensive Stormwater Services

Black & Veatch's multi-disciplinary team of specialists provides an integrated suite of stormwater services that encompass the technical, financial, management, technology and stakeholder aspects. With our nationwide experience, innovative practices and partnerships, rigorous methods and tools, we assist municipalities large and small in establishing a stronger "nexus" among four key components – Program Needs, Reliable Cost Projections, User Fee Funding and Customer Benefits.

Program and Operations



- Program Management
- Program Visioning
- Organizational and Management Reviews
- Level of Service Evaluations
- O&M Plans
- Regulatory Compliance Support
- Program Budgeting
- Alternative Program Delivery
- Alternative Funding

Green Infrastructure



- Holistic GSI Planning
- Site and Regional GSI Design
- Monitoring and Maintenance Plans
- GSI and LID Guidance/Manuals
- Program Management
- Alternative Program Delivery

Watersheds and Environment



- MS4 Program Development
- MS4 Permitting
- Environmental Permitting
- TMDL and BMAP Development
- Water Quality Modeling
- Stream Restoration/Stabilization
- Wetland Design

Infrastructure Management



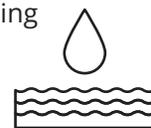
- Asset Management Frameworks
- Asset Inventory
- Asset Condition Assessment
- Asset Management Planning, Capital Program Prioritization and Financing
- Infrastructure Design
- Risk Integrated Project Prioritization

Utility Development and Implementation



- Organizational Review
- Financial Planning
- Impervious Area Analysis
- Fee Methodology and Rate Structure
- Utility Policies and Rate Ordinance
- Credits and Appeals Program
- Billing Implementation and Data Management

Hydrology and Hydraulics



- Hydrologic and Hydraulic Modeling
- Flood and Inundation Mapping
- Dam Breach Modeling
- Water Quality Modeling
- CFD Modeling
- Stormwater Infrastructure Design
- Hydraulic Structure Design

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